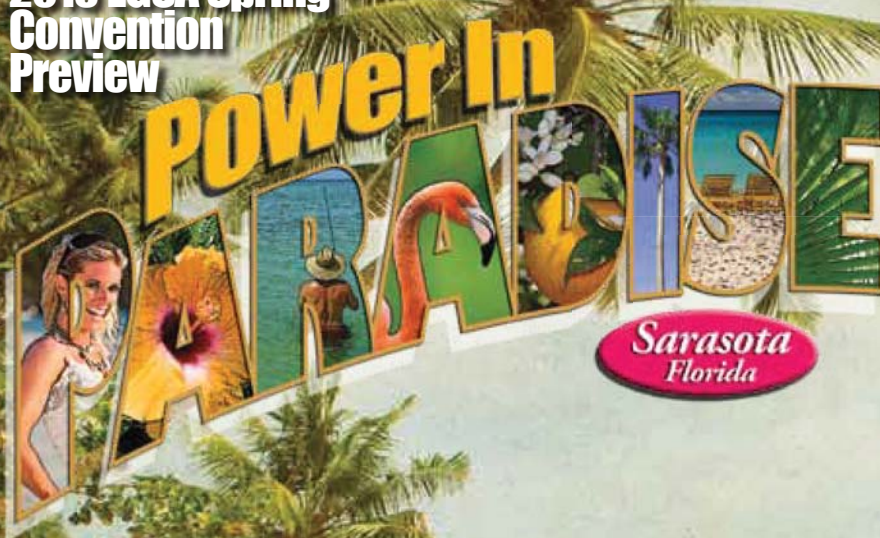


# POWERLINE

The Voice of the On-Site Power Generating Industry



2013 EGSA Spring  
Convention  
Preview



Plus:  
**Why Corporate  
Responsibility  
Matters, Again**

**Structured Generator Maintenance:  
The Key to Maximizing Useful  
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**Case Study: Off-Grid Installation on  
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# EVENTS CALENDAR

## Conferences & Conventions

### NFMT Conference & Expo

March 12-14, 2013; Baltimore, MD

The country's #1 conference and exposition for non-residential building owners; facility managers; maintenance engineers; directors of sustainability; planning; operations and management. EGSA has partnered with NFMT to launch the Power Source Pavilion. The Power Source Pavilion and educational sessions will provide facility professionals with exclusive access to on-site power solutions. For exhibit information, contact EGSA at (561) 750-5575, ext 203 or e-mail Kim Giles at [K.Giles@EGSA.org](mailto:K.Giles@EGSA.org).

### EGSA 2013 Spring Convention

March 17-19, 2013; Sarasota, FL

EGSA's Annual Spring Convention features educational sessions on a broad range of issues impacting today's On-Site Power industry. More information is available at [www.EGSA.org/spring](http://www.EGSA.org/spring) or by calling (561) 750-5575.

### EGSA 2013 Fall Technical & Marketing Conference

September 15-17, 2013; Seattle (Bellevue), WA

The Fall Technical and Marketing Conference is held during September and is designed to focus on technical and marketing issues. Registration information will be available online at [www.EGSA.org](http://www.EGSA.org) or call (561) 750-5575.

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### Basic Schools

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Austin, TX ..... August 13-15  
Orlando, FL \*\* ..... November 12-14\*

\*To be held concurrently with POWER-GEN International 2013

### Advanced Schools

Buffalo, NY ..... June 24-27  
Chicago, IL ..... October 21-24

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- November 12-14 - Orlando, FL\*

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### 2013 ADVANCED SCHOOLS

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- January 28-31 - Scottsdale, AZ
- June 24-27 - Buffalo, NY
- October 21-24 - Rosemont, IL

Visit [www.egsa.org](http://www.egsa.org) for more information or call EGSA's Director of Education, Bob Breese, at (262) 225-3107.





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Debra Laurents  
2013 EGSA President  
Debra.M.Laurents  
@cummins.com

## 2013 EGSA President, Debra Laurents

In an ever changing world, it is still refreshing to have a few things that remain constant. One constant for our *Powerline* readers is the familiar and constant, "From the Top," article that is crafted each issue by the current President of our trade association, the Electrical Generating Systems Association (EGSA).

The true purpose of the article each issue is to provide our readers, as well as EGSA Members, with a roadmap of where EGSA is going... to showcase the projects and programs that we are providing for the Industry and most importantly, to encourage active participation from our Members and readers by providing a platform for our voice within On-Site Power. It's also a job we take pretty seriously!

Now for the change... we hope you will find this next article a refreshing diversion from our "constant" From the Top article, as we asked Debra Laurents, of Cummins Power Generation and our 2013 EGSA President, to sit down with our editorial staff during Power-Gen International last month.

Debra Laurents is a Director for Cummins Power Generation in their Shoreview, MN location. Deb embodies EGSA volunteerism at its finest! She has been an active Member for more than 9 years and a staple of the EGSA Executive Board for the last three years.

### Here are the highlights of that interview!

**INTERVIEWER:** "Deb, what do you enjoy most about being a Member of EGSA?"

**LAURENTS:** "I enjoy the opportunities we have as members to become involved in the activities and goals of the organization; it's a chance to add value for all members and give back to the industry. I also appreciate the opportunity to connect with other members from across the Industry."

**INTERVIEWER:** "When did you first become involved with EGSA and what are the most significant changes you have seen in the Association since then?"

**LAURENTS:** "The first conference I attended was in September of 2003, in Nashville, TN. Since then, our Membership has increased by more than 70%. I've seen some significant changes, all of which have added value for our Members. Here are a few highlights:

- **Technician Certification Program:** Since its inception, we have certified over 800 technicians. The committee has consisted of a variety of representatives each committed to

making this program a success. It was through the leadership of George Rowley, our former Director of Education, that we were able to realize this goal and make the program what it is today.

- **Two-tiered schools:** We now offer both basic and advanced programs to better meet the educational needs of our students.
- **Strategic Long Range Plan:** President Gary Kidwell, in 2007, saw the need for strategic planning within the organization. Together, we developed a team of current and former Board members to craft the plan. Now, we have a living document, with concrete goals, that can be used by Committees to drive their activities and initiatives. The strategic plan also highlighted the need for a Marketing Manager within EGSA. Now, we have a resource in Kim Giles who focuses exclusively on marketing activities. We see the results of her efforts throughout the organization.
- Our conferences and conventions are excellent examples of continuous improvement within the organization. The efforts of EGSA staff and the Communications and Conventions committee, currently led by EGSA Vice President Ed Murphy, have taken our meetings to a new level of professionalism."

**INTERVIEWER:** "What was your first impression of EGSA?"

**LAURENTS:** "Everyone was so kind and welcoming! At my first convention, I went on the Sunday afternoon tour of Nashville. I felt like part of the group in no time at all. In particular, I remember meeting Ken Niekamp (2007 Gordon Johnson Lifetime Achievement Award recipient) and his wife, Judy. They took me under their wing and I consider them dear friends to this day. That kindness continued throughout the convention and the years, from the First-Timer's Reception until today."

**INTERVIEWER:** "During the course of your Membership with EGSA, what has prepared you for this role as President of the Association?"

**LAURENTS:** "I've been involved in several Committees since I've become involved with EGSA: Membership, Technician Certification, as well as the Strategic Planning Committee. The work of EGSA happens within our Committees, which offer a great opportunity for Members to participate and help achieve the goals of our organization. Serving

*Continued on page 13*





Bob Breese  
EGSA Director  
of Education  
[b.breese@EGSA.org](mailto:b.breese@EGSA.org)

## The EGSA Education Update

Greetings; my name is Bob Breese and I am the new Director of Education for EGSA. Before anything else I want to acknowledge and thank George Rowley for his years of service and dedication as the previous Director of Education. He was instrumental in establishing the programs and educational materials which we currently enjoy. I am grateful for his example and accomplishments. I look forward to working with our Members to continue to promote and expand the education opportunities which EGSA provides. I welcome any comments, suggestions or questions you may have about the EGSA Education Programs.

### Basic and Advanced School Update

2012 was a very good year. School attendance for the six schools which we presented was near capacity with 219 attendees out of a possible 240 planned seats. 60 of those students tested to gain Continuing Education Units (CEUs). There are six schools scheduled for this year, the dates and locations can be found on page 5.

This year we will be revising and updating the school curriculum and CEU tests to reflect changes within the industry and technology in the recent years. Almost all of our instructors have attended the Instructor Enhancement training provided by Bill Heacock, and our instructor videotaping and feedback program is progressing. Through the curriculum update and the instructor enhancement, we will continue to provide a professional and current Power Generation School program.

### Technician Certification Update

This past year, 289 new EGSA certified techs were added to the rolls, bringing the total number of currently certified technicians to 741. This year, we will be evaluating and updating the certi-

fication test to include the latest and greatest new technology which service techs are likely to see in the field. We are also looking at ways to make the testing process more convenient to service techs, both for initial testing and for recertification testing. We will keep you updated as new information becomes available.

There is great value in tech certification. The EGSA certification program and test have established standards of knowledge and performance for generator service technicians. By passing the exam the technician demonstrates proficiency and a level of knowledge that proves he or she knows what they are doing and have differentiated themselves from other non-certified technicians. Therefore, everyone, from manufacturers to end users, can have confidence that an EGSA certified technician has the knowledge and proficiency to install, maintain, service and repair expensive and complicated power generation equipment.

We encourage all manufacturers and distributor trained technicians, as well as others (service and electrical maintenance personnel, etc.) to become certified. More information about the certification test is available at our website ([www.egsa.org](http://www.egsa.org)).

### Education Projects Update

Our other projects are progressing. The e-learning courses are being developed and the 5th edition of the *On-Site Power Generation Reference Book* is making good progress.

We appreciate your continuing support of the EGSA Education Programs! If you have suggestions for, or questions about, EGSA education programs please contact Bob Breese via e-mail at [b.breese@egsa.org](mailto:b.breese@egsa.org), or by phone at (262) 225-3107. ■

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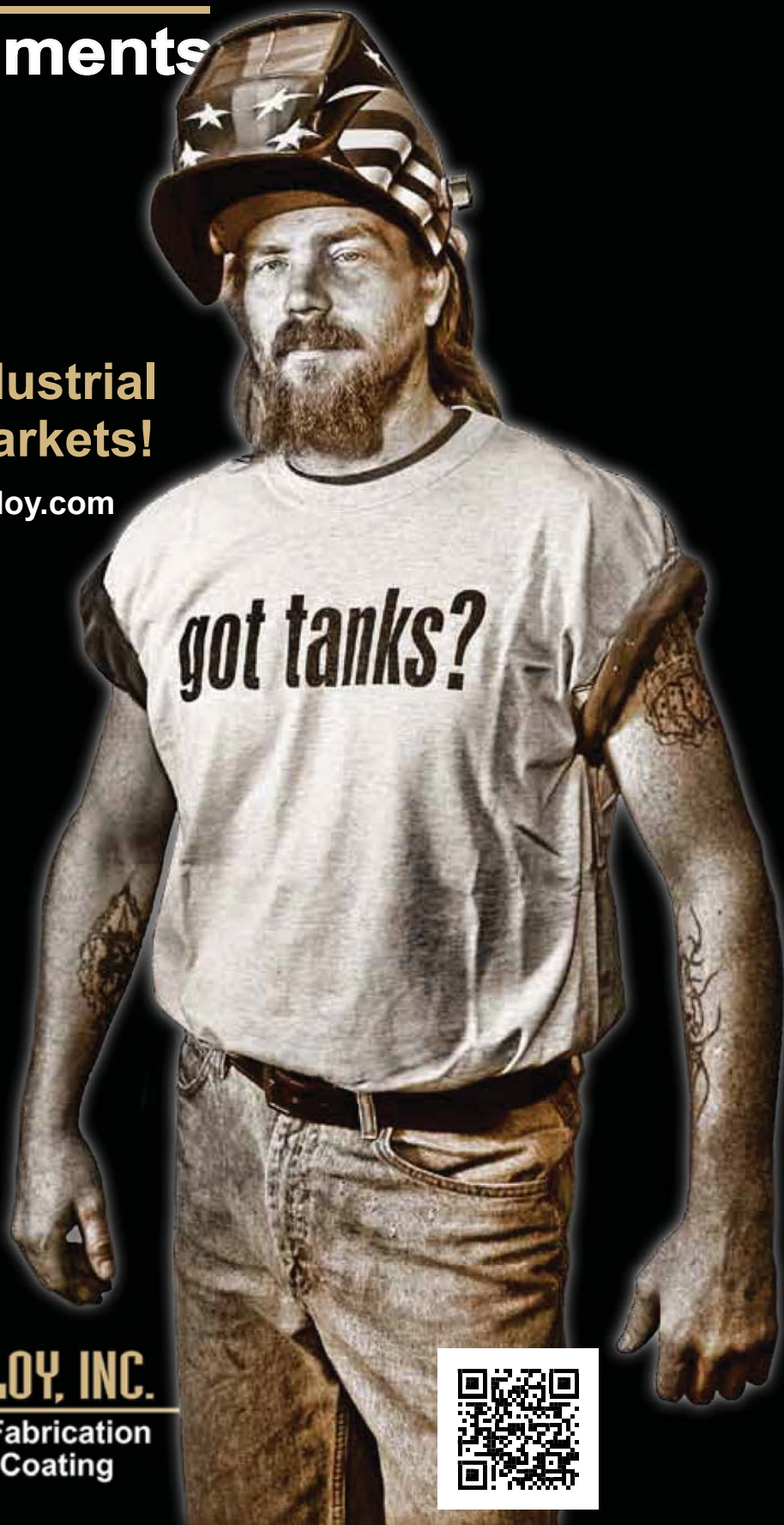
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EGSA Technical Advisor  
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## Codes & Standards

Herb Daugherty attended the National Electric Code Panel 13 meeting in California from November 28 until December 1. Panel 13 covers Sections 445, 455, 695, 700, 701, 702 and 708 of the NEC. The panel reviewed and voted on 110 public comments and 5 panel committee comments. The topics resulting in the most debate were:

1. Requiring Ground Fault Circuit Interrupter (GFCI) protection on outlet receptacles on 15 kW and smaller generator sets (those covered by UL 2201). This issue was resolved and approved by a unanimous vote of the committee, with a requirement that the generators can have a twist lock 125/250 volt receptacle without GFCI for isolated, floating neutral applications and also be equipped with GFCI 15 and 20 amp outlet receptacles for in premises use.
2. Increase in fire resistant concrete protection for conductors in fire pump applications from 2 inches to 4 inches. For cables running under the floor at grade level, 2 inches will still be acceptable.
3. The requirement for selective coordination on the Normal side of Emergency Systems was passed.
4. Surge protective devices shall be required on all Emergency System switchboards and panelboards.

A proposal by Code Making Panel 1 of the NEC (National Electric Code) will make the Space requirements of Articles 110.26(A) and 110.32 be physically marked either on the equipment or immediately adjacent to it. These space requirements are for equipment that may need examination, adjustment, maintenance or servicing, while energized.

At the EGSA Board meeting at Power-Gen International, there was discussion concerning the ongoing group writing a Recommended Practice for Muffler ratings. The Board also discussed a recommended Practice for digital interface between paralleled digitally controlled generator sets. Anyone interested in these two topics should contact Steve Evans ([steven.evans@emerson.com](mailto:steven.evans@emerson.com)) with ASCO.

The Environmental Protection Agency (EPA) provided an extension of the public comment period for the proposed rule "Greenhouse Gas Reporting Program: Proposed Amendments and Confidentiality Determinations for Subpart I." from December 17, 2012 to January 16, 2013.

I voted to approve Standard ISO8528-5 – *Reciprocating internal combustion engine driven alternating current generating sets – Part 5: Generating Sets*. There were no significant changes in the update to this Standard.

IEEE 1547 *Standard For Interconnecting Distributed Resources with the Electric Power System* - update from the Codes and Standards Surveillance Committee. Immediate Past President Pope signed a letter to the Committee asking that the next edition be more friendly to engine-driven generator sets. Presently, the standard is written around inverter systems. Marcelo Algrain, a Member of the EGSA Committee from Caterpillar, Inc. is our voting Member for IEEE 1547.

I received the Resolution of the 28th meeting of ISO/TC 70/SC\* help in Paris in September. They discussed several Parts to ISO 8178 – *Reciprocating Internal Combustion Engines – Exhaust Emissions Measurement*. ■

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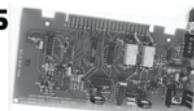


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Continued from page 7

as a Committee Officer also afforded me leadership experience and is a key requirement for nomination to the Board of Directors.

As a member of the Board of Directors and an Officer, I've had the opportunity to be involved in the daily operations of the organization. In addition to reviewing recommendations from Committees, we regularly review EGSA's finances, monitor our programs and ensure the organization is moving forward."

**INTERVIEWER:** "You have been on the Membership Committee for several years. How do you think new members would benefit most from their involvement with EGSA?"

**LAURENTS:** "I think new EGSA Members should take advantage of the programs offered by EGSA such as the On-Site Power Schools (Basic and Advanced) and our EGSA Technician Certification Programs. To get the most from their involvement, however, I recommend attending our conferences and conventions. These meetings are a great way to get to know the organization and more importantly, the people that make up our Membership and our Industry. I believe there is something for everyone at these bi-annual meetings!"

**INTERVIEWER:** "Where would you like to see EGSA headed within the next five years?"

**LAURENTS:** "The EGSA vision is to provide an environment where On-Site Power Generation industry experts unite and share knowledge to drive the industry to higher levels of service and performance. Over the next five years, I'd like to see us take that next step in determining how we advance the interests of our industry. We should examine the key issues affecting On-Site Power and look for ways EGSA can have a positive role and impact."

**INTERVIEWER:** "Tell us about your hobbies and interests outside of the Power Generation Industry?"

**LAURENTS:** "I love to travel. I got a taste of it when I was young and I've been fortunate to visit a lot of different places throughout my career. Spain is one of my favorite destinations. I studied there when I was in college, and I've been back a couple of times since. I also have a long list of places I'd like to see within the United States.

My Mom did a lot of work on our family history. I picked up where she left off and I've really enjoyed doing research and finding interesting tidbits. I've traced part of our family back to the 1500's in Spain, and discovered an uncle that was a famous fur trader in his day.

I'm also a bit of a football fan. The Minnesota Vikings, to be specific. I'm holding out hope that they'll take us back to the Superbowl one day soon! It's been a while, and we're overdue."



*Debra Laurents, true to the Minnesota Vikings, supports her team with nephews, Griffin (left) and Tyler Schmidt (right).*

**INTERVIEWER:** "We hope that happens for Minnesota and for you, Deb! We are sure the Team would love to hear it as well. Along those same lines, if you could speak personally to each of our readers, members, non-members, end user community, etc. what is one thing you would impart to them as the 2013 President?"

**LAURENTS:** "It is my intention to continue and build on the work of our past leadership to grow EGSA as an increasingly successful and influential trade association, for the betterment of our Members and our Industry. It is my feeling that there are several steps that are critical to our success:

1. Increase membership - If we continue to meet our membership goals of 8% growth per annum, we'll reach 1000 members in 2014!
2. Increase involvement of our Members.
3. Develop initiatives that support the goals of the Association:
  - Provide the On-Site Power community with education and Industry enrichment
  - Maintain financial viability to ensure a strong EGSA future
  - Develop programs that promote long-term membership value
4. Ensure that EGSA keeps pace with a rapidly changing and dynamic On-Site Power Industry."

**INTERVIEWER:** "We certainly appreciate you taking the time to sit down with us during Power-Gen, Deb! We know that you will do a wonderful job representing this highly enthusiastic and wonderful association! We look forward to working with you in 2013 and beyond." ■





# Why Corporate Responsibility Matters, Again

By Larry Bryce, P.E., President, Kohler Power Systems

It seems that the Corporate Social Responsibility (CSR) debate continues. Over the last few years, we've seen most of the On-site Power Generation Industry recognize the value of CSR, design new initiatives and passionately execute practices. The results? Without question, positive. Very positive.

But in occasional meetings and muted conversations, I keep hearing mixed reactions. Don't get me wrong; I hear broad support for and I see strong investment in CSR. I also run into enough doubts and even dismissals, that I feel compelled to speak up. It's important to keep campaigning for a concept — actually, a business and industry imperative — if our businesses and our industry are to continue to evolve and mature into sustainability and relevance to our customers, our marketplace and really ourselves.

So... what negatives do I hear? Well, some “just aren't there yet.” More than a few wonder about the time and effort that goes into a CSR approach. Will it really help increase profits? Does it actually represent a cost? When you really measure it, isn't it a net negative? A few seem to view it as something of a

standing of just what CSR is and how transformative it has the potential of being. I'll certainly admit that my first reactions to CSR included a few impulsive concerns. After careful consideration, I was convinced that it was clearly the right way to

go, and this judgment was quickly confirmed when nascent CSR practices at Kohler Power Systems immediately showed broad positives. We went all-in.

It's important to stress that CSR is not just an “initiative,” an “effort” or a “program.” Instead, it is — has to be — part of the strategic business model. CSR is about taking the lead, about being proactive and using business resources and expertise to address a broad range of corporate, community and individual concerns. Most importantly, it gives everyone a stake in the business. In the process, it breaks down any “us against them” thinking and replaces it with a construct that broadens the very purpose of the business. When you think

about CSR as part of your business model, it creates a sense of greater purpose for your

employees and for what the company stands for. So, you have to step back and look at the larger picture about how this will give your company a sustainable advantage — which means a financial payback — or else none of us will pursue this noble direction.

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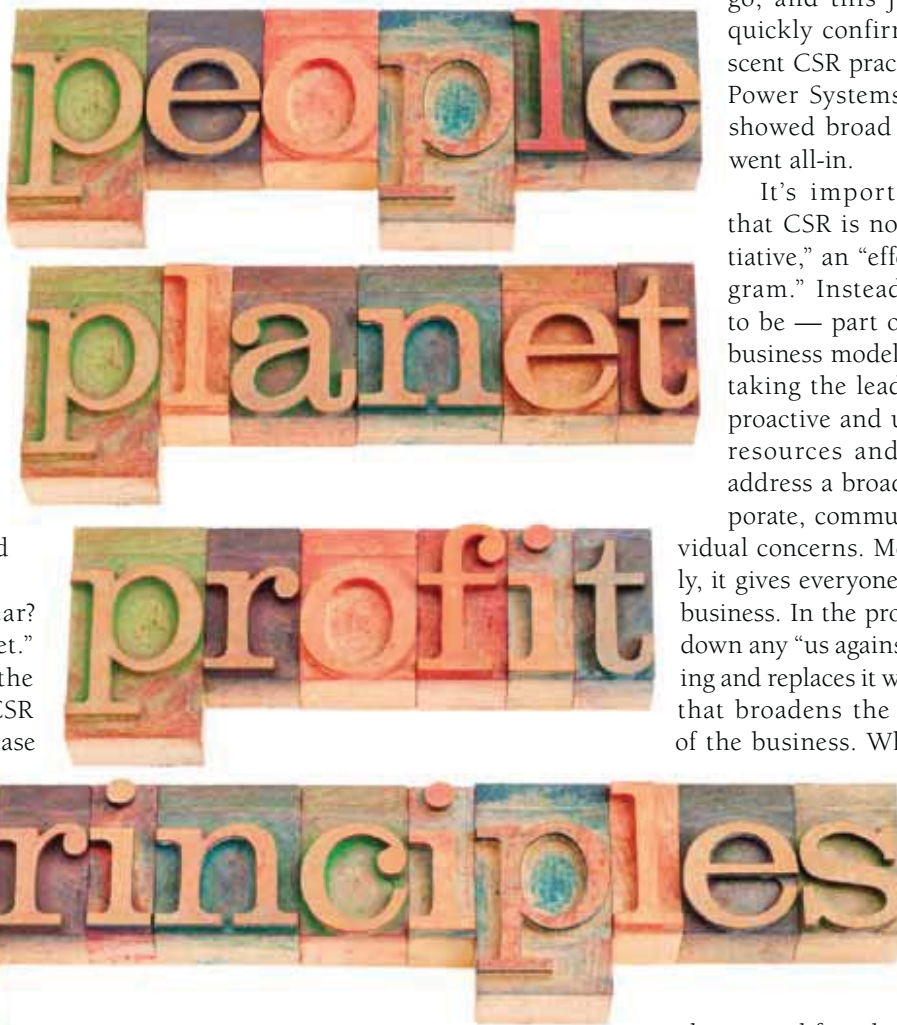
PR and marketing strategy — a wrapper designed to attract new customers. Others think of CSR as just a trend.

Well, I'm here to disagree with those who doubt the viability of CSR and remind all of us what CSR is and why it matters. Again.

My reaction to complaints about CSR is that the root of concern and doubt largely comes from an incomplete under-

## Will CSR Increase Profits?

Before I outline just how CSR works, let's address a couple of those doubts that keep popping up. First, will CSR increase profits? This is the first and primary quibble. I strongly believe the answer is “yes,” but of course, the success of any strategic business effort hinges upon execution. Beyond that quick an-



swer, what should be mentioned is that just bringing up the concept of profit first suggests a limited understanding of CSR. To repeat, CSR cannot be just a program or “fashion” of the day. It must be integrated into your company’s business model to foster a sense of a greater purpose for employees, to make your company more than a place to get a paycheck. Instead, CSR can help create a place where people want to spend the majority of their waking hours.

It’s interesting that more than once when I’ve heard CSR and profits debated, Gordon Gecko’s “greed is good” line from “Wall Street” comes up. So, is greed good? You just can’t win answering that one! This much I can say:

profits are good. Without profits, a company cannot sustain itself much less create any value for stakeholders. Profits enable growth, jobs and job security – all “good.” That said, Gecko’s attitude is also often and rightly skewered for its limited view of why a business exists.

Let me quickly follow that statement by declaring that I am a champion of our free enterprise system. As much as I believe that the engine that drives our businesses is investment and innovation unshackled by governmental regulation, it is also true that a business is simply not operating in a vacuum devoid of social and environmental concerns or other limitations that deserve to be carefully weighed — and balanced. The whole point of CSR is that profits and a company’s value aren’t seen only on a bottom line or only through the eyes of traditional shareholders. Instead, the business is responsive to the needs of all “stakeholders.”

Instead of looking at a company through a different prism for each stakeholder group — owners, investors, management, employees, customers, environmentalists, the community, competitors, the industry — a company that has integrated the principles of corporate social responsibility exists to “do the right thing” to serve the interests of all stakeholders. That is, the mission of the company — even its purpose — is to be capable of being viewed through a single prism that offers a gamut of profits and value across a whole spectrum of stakeholders.

### A Trend That Will Pass?

Is CSR a new trend? No, it’s not a trend. I’d say, yes, CSR is new, and yet it has powerful forerunners that make it clear that social responsibility has always been part of a vision of what a business is and why it exists. While I don’t pretend to be a student of the history of capitalism or the free market, consider the vigorous free market capitalism championed in the 1700s by Adam Smith. It included the assumption that an “invisible hand” ensured that individual effort produced not just products and profits, but broadly felt benefits. Peter Drucker famously insisted in the 1970s that: “There is no conflict between profit and social responsibility.” And, John Elkington, Robert Rubinstein and others in the 1980s and 1990s reweave the same fabric by promoting the Three Bottom Line (TBL) model that sees Profits, People and the Planet in a broader, and more nuanced, context. The TBL concept requires that a company’s responsibility lies

with a broad range of stakeholders as I alluded to above — that is, anyone or anything directly or indirectly influenced by the actions of the firm — not just the classic shareholders who are eligible to share profits.

In a contemporary view of CSR, just as the definition of profits can be as social and environmental as any realized financial

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*Any analysis of any business and of any CSR initiative really has to start with the customer and look upstream at everything that contributes to value in the product or service being offered.*

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gain, the term “investments” can be similarly broadened to include, for example, support for the community or for recycling just as much as in a more traditional investment like Research and Development.

Another illuminating way to discuss CSR is in the concepts and language of game theory. CSR frees a business from all zero-sum game mentality and looks instead to balance the interests of corporations and customers, of the business and the community, of management and labor, of profits and the environment, and so on... to create wins across the board an enlargement of the total social contribution pie, so to speak. So CSR isn’t about seeing others in opposition and working to defeat them. Instead it promotes an ethical approach. CSR is about the people who make up a business and how their behavior and business practices can be sensitive to social, cultural, economic and environmental issues. In fact, it is this responsiveness that fosters the success and sustainability of the business itself.

This is what Harvard Business School Professor Michael Porter introduced in 2006 as Creating Shared Value (CSV). CSV is based on the idea that corporate success and social welfare are interdependent and considered to be a transition and expansion of the CSR concept. Without being distracted by the distinction between the two, I’d summarize CSV this way: Porter argued that business needs a healthy, educated workforce, sustainable resources and adept government to compete effectively. Meanwhile, for society to thrive, profitable and competitive businesses must be developed and supported to create jobs and income, tax revenues, wealth and opportunities for philanthropy.

### A Model for Sustainability?

So, how exactly does this sort of thing play out? Well, let’s look at one of those three “Ps” that make up the Three Bottom Line model — the Planet. Corporations have long been criticized for their negative impact on the natural environment, ranging from the consumption of raw materials and energy to wasteful processes, pollution and ultimately, product disposal.

The On-Site Power Industry has, by and large, already responded aggressively to such criticism by addressing all factors in the sustainability equation: redesigning products and processes to refine the use of raw materials; substantially reducing waste and energy usage during manufacturing; and by developing approaches to recycle and dispose of products at the end of



service. While our products now have smaller footprints and higher power densities, they have also been made substantially more energy efficient to meet or exceed rapidly advancing environmental standards.

Speaking of, I want to stress that I strongly believe that one of the key roles that the Electrical Generating Systems Association can play in our Industry is to promote and organize self-directed responses to challenges, as opposed to governmental mandates and regulations. Is it effective to be burdened by layers of environmental standards (CARB, IBC, Rice Neshap, EPA, etc.) issued by the Federal, State and City Governments? I mean, how about the 23 different State requirements for fuel tanks! We as an Industry, are in a far better position to identify and effectively address environmental and social interests than any central bureaucracy or body of legislators. With support of organizations like EGSA, we can come together to drive change in government.

I digress. It's fair to say that Kohler Power Systems and many of our competitors in the Industry are already pursuing integrated social responsibility approaches that strike a balance between sustainable commercial and environmental goals. This collective tide of social responsibility initiatives is raising our entire Industry to higher levels of ethics, safety and sustainability.

### How to Build Value for Customers?

So, we've now touched on two "Ps" — Profit and the Planet — what about other stakeholders? What about "People"? I haven't yet mentioned a key stakeholder — customers. Here's a group that deserves special consideration in terms of social responsibility, in part because they are highly responsive. Customers are, of course, absolutely critical to traditionally defined "profits," the primary requirement for a company's subsistence. No revenue = No business. By building your customer base and market share, your company will grow, as will the ability to create more value for

harmful production, child labor, dangerous working environments and other inhumane conditions are examples of issues being brought into the open. All companies and organizations aiming at long-term profitability and credibility are starting to realize that they must act in accordance with norms of right and wrong."

In the opening of a deep and detailed blog post entitled *Investing in Corporate Social Responsibility to Enhance Customer Value* that I highly recommend on the subject, Noam Noked, co-editor, Harvard Law School Forum on Corporate Governance and Financial Regulation, points out that to understand how CSR can impact profitability, one must look at how value is created for customers.

It is the customer perception of this value that mediates the relationship between CSR activities and subsequent financial performance.

Yes, any analysis of any business and of any CSR initiative really has to start with the customer and look upstream at everything that contributes to value in the product or service that is being offered. A good reputation is vital for a successful company, with the rapid growth of social media becoming more relevant and vital to building a strong brand image.

Don't believe the consumers' opinion really matters? Think again. As reported by Yanklovich Monitor, 63% of consumers agree that when a company donates to or does something for their community, they prefer to buy from that company. European studies show that two in five people are willing to pay more for a product or service that has a positive CSR, and conversely, that three in six people actively boycott or support products and services based on CSR. Still not convinced? Think about the speed at which social media can make a person, a product or a company an overnight success, or mock a company that stubs its toe. No anecdote needed here — it happens every day.



*CSR frees a business from all zero-sum game mentality and looks instead to balance the interests of corporations and customers, of the business and the community, of management and labor, of profits and the environment, and so on to create "wins" across the board.*

stakeholders. It's all chicken-and-egg that way.

Customers are evolving, too. They are now something of a force, rightly empowered with more information and wielding a stronger sense of both personal and collective buying power. Your customers care about how businesses conduct business. As the International Organization for Standardization (ISO) puts it:

"In the wake of increasing globalization, we have become increasingly conscious not only of what we buy, but also how the goods and services we buy have been produced. Environmentally

### Employees as Stakeholders

Another rather obvious stakeholder group is employees. It's relevant to mention here the degrees of corporate social responsibility that a business can choose to adopt. Typically viewed as three levels, they can form a ladder of progression as a company becomes more committed to CSR:

1. Social Obligation: a company complies with wage and working time laws and provides minimum required benefits.
2. Social Responsibility: a company offers employees added benefits, often to better recruit, engage and retain a more effective workforce.
3. Social Responsiveness: a company works proactively to improve the quality of work life for employees.

According to Douglas Klein, President of Sirota Survey Intelligence, the more responsible and the more responsive a company's CSR efforts become, the more employees become "satisfied

with their jobs, adopt similar values and become committed to achieving success within the industry.”

Meaningful company involvement in the causes that are important to employees helps build the “employee proposition” — the “choice brand” the company offers to recruits. It has also become apparent that when employees share a company’s CSR goals, engagement, productivity and a sense of integrity all increase markedly. Another way to look at this is to say that employee motivation spikes when employees perceive that they are working for a broader number of stakeholders.

This collective motivation can in turn energize business to become even more socially responsible, with its sense of responsibility and the scope of responsiveness naturally expanding to include greater involvement with a larger circle of stakeholders. This community might first extend, for example, to employees’ families, then to support for civic projects, the arts, religion and education.

### Ethics are Contagious

If “right” practices matter, how can a business foster a culture that supports ethical behavior by employees? In the past, when businesses considered ethics, they typically meant one of three things:

1. Avoid breaking the law in one’s work-related activity.
2. Avoid action that may result in civil lawsuits against the company.
3. Avoid actions that are bad for the company image.

First, let me point out an attractive positive that CSR promotes that I hear regularly: it protects the self-interests of the business by preventing unethical conduct that can damage a company’s reputation and create financial loss. Yes, it does that. However, to point primarily to this benefit misses the bigger picture. CSR offers far more than playing a defense against costs. When CSR is fully integrated into corporate business practices, the opposite dynamic comes into play — companies and their employees are proactively looking for ways to do the right thing across the board for Profit, People and the Planet.

It’s worth circling all the way back to Adam Smith here to make a point about the relationship between regulation and ethics. Smith pointed out that governments use laws and regulations to point business behavior in what they perceive to be beneficial directions. Ethics implicitly regulate areas and details of behavior that lie beyond governmental control. Cut to the present: it is the emergence of large corporations with limited relationships and sensitivity to the communities in which they operate that accelerated the development of formal ethics regimes.

I should also add that in my experience ethics are highly contagious, especially when everyone in an organization can see that in addition to producing goods and services, a company is also manufacturing value that benefits all stakeholders.

### Thinking Big Picture

In addition to the investment in and the support of community that I have already mentioned above, there is, of course, a simple beauty to our Industry — the products and services of

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the On-Site Power Generation Industry inherently serve a very large group of stakeholders affected by power outages after a severe weather event or power grid failure. That’s certainly thinking big picture for our Industry.

This brings me to a challenge that I’d like to extend to all EGSA Members. I’ve already stressed how EGSA can help promote and coordinate industry-wide efforts to change government. If there’s anything I’ve learned from integrating CSR into the Kohler Power Systems business model, it’s that CSR rewards big-picture, long-range strategic thinking. When in doubt, think beyond yourself, think beyond your company or even the

Industry. Can we collectively think even bigger than supplying On-Site Power?

How about considering that we are in a position to contribute to our economic system, perhaps even our country. How is that? As we are all aware, in addition to the extremes of weather, the aging U.S. power grid is facing significant challenges as overall demand and the threat of cyber attacks continue to grow.

Currently, 40% of the U.S. grid is over 40 years old and it shows. According to a recent report from the Lexington Institute, on any given day, some 500,000 Americans experience a power outage. Fortunately, most of these outages are brief and their occurrence is spread across the entire country, but



### Kohler Stewardship

I invite you to visit the Kohler website to review the Kohler Stewardship initiative as it reflects workplace practices as well as the many citizenship efforts and contributions the Company and our 30,000 associates undertake around the world, year after year. Stewardship is a catalyst for positive change and is our way of enhancing the quality of life for current and future generations.



that level of unreliability hints at the potential for truly profound economic impacts of broader outages in the future. Even now, according to the Galvin Electricity Initiative, annual interruptions to the electrical supply cost the nation an estimated \$150 billion.

Because of deregulation, private industry is largely responsible for updating and maintaining the grid. Peak demand to electricity use in the U.S. is forecast to increase by almost 20% in the next ten years, while resources to improve the grid are projected to increase by less than 10%.

The flip side of that is, of course, that this issue is very close to our Industry and it represents a great opportunity to use our collective expertise to have a positive impact on how the issue is addressed. The issue — having sufficient power — is of critical importance to our customers and, really, it affects all of us... even economic viability and national security.

I encourage all EGSA Members join Kohler Power Systems in an effort to take a leadership role to make improvements to the power grid a shared industry initiative. In the spirit of CSR, stakeholders are welcome. ■

## *If there's anything I've learned from integrating CSR into the Kohler Power Systems business model, it's that CSR rewards big-picture, long-range strategic thinking.*


Meanwhile, overall demand is expected to increase by 30% by the year 2035, much of that in the residential sector and in warmer climates that are more susceptible to heat waves and high electrical use. To make matters worse, many of the senior engineers who have helped build and maintain the power grid are preparing for retirement, which means the highly technical and challenging job of managing and maintaining the power grid will soon be the responsibility of a less experienced work force.

### About the Author

Larry Bryce, P.E. is President of Kohler Power Systems and is responsible for strategic direction and business results for



business in North America, India, China, Singapore and Kohler marine business worldwide. His expertise includes heavy equipment marketing, business development and manufacturing operations, as well as management of regional and global organizational strategies and long range planning. A registered Professional Engineer, Larry earned his B.S. in Civil Engineering from Oklahoma State University and an MBA from the Kellogg School of Management at Northwestern University.



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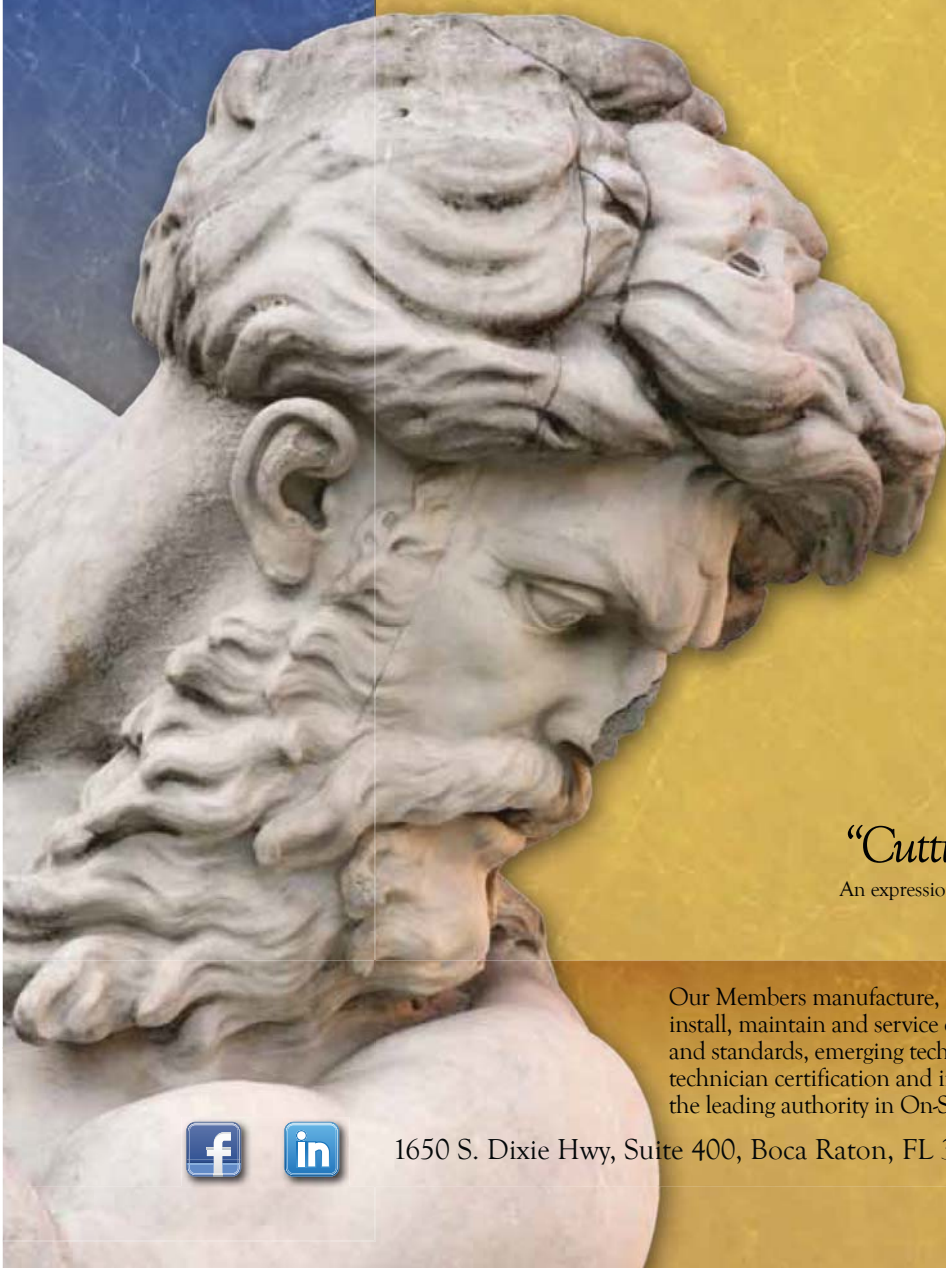

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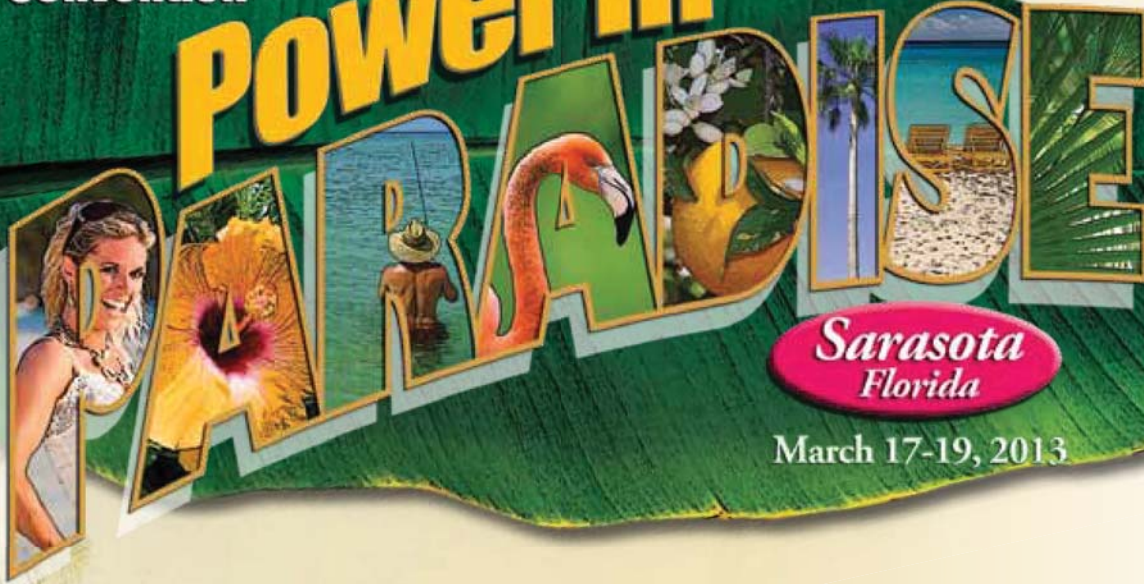


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2013 EGSA Spring  
Convention

Power In



## Whether the Florida Climate Suits Your Clothes or Not, Please Join Us for "Power in Paradise"

While you won't be able to pack away all of your winter sweaters just yet, you can (at least) put them away for a few days during the 48th annual EGSA Spring Convention! We are really looking forward to hosting you from March 17th through the 19th in Sarasota, FL. This is one EGSA event that you are not going to want to miss!

First, the theme – the EGSA Conventions & Communications Committee reviewed more than 100 theme submissions from fellow Members at the Fall Technical & Marketing Conference in Milwaukee last year and came to the conclusion that "Power in Paradise" was the clear winner. That being said, we have built the event to be just that!

### Speaker Line-up

With the 2012 Presidential election in our rearview mirror, the Committee thought it would be an important component of the educational program to bring in an economist who could provide the EGSA audience with a snapshot of the new year! Tulane University's **Peter Ricchiuti** will return

to the EGSA stage once more to share his informative and entertaining perspective on financial markets, the importance of proper diversification and the cyclical nature of both stocks and investment sectors.

Ready to power up your employees with better customer service techniques and tools? **Charles Marshall**, Professional Speaker and Humorist, will examine common business blunders and questionable customer-service practices that prevent companies from growing. In an often hilarious, but always insightful examination of businesses of all sizes, Charles takes a look at what makes good customer service work and what makes bad customer service disastrous.



The Spring Convention lineup would not be complete without EGSA Member participation in our speaker line-up! We have informative sessions presented by our Members like **Mike Pincus, P.E.**, Manager of System Sales for Kohler Power Systems, who will present a case study on the unique challenges in developing a power system for the University of Miami - Medical Center.

The design required more than one generator to be on-line within 10 seconds and the complexity of the system necessitated a unique documentation method for the operators to understand how the system works. This case study will look at how the project progressed from a conceptual one-line to the final installed product.

**Mike McGovern**, Senior Vice President at Atlantic Detroit Diesel-Allison, LLC - Power Systems Division and EGSA Member, will be presenting on extreme weather from the standpoint of a service provider. Last year, when Superstorm Sandy wreaked havoc on parts of the U.S. East Coast after tearing through the Caribbean





an, this extreme weather event presented some very unique challenges for the On-Site Power Industry. Mike's presentation will provide an in-depth overview of the storm analysis and lessons learned from a regional perspective of what occurred in New Jersey, New York and Connecticut.



From extreme weather to space weather! **John G. Kappenman**, Principle at Storm Analysis Consultants has been an active researcher

on geomagnetic storms, space weather, EMP (Electro Magnetic Pulse), and their disruptive effects on electric power systems for more than 35 years.

John will be presenting "Severe Space Weather: Preparing US Power Grids & Understanding the Societal & Economic Impacts" on Tuesday. While a severe geomagnetic storm (Space Weather) is a relatively infrequent event, it has the potential for long-term societal and financial impacts to the power grid.

Recent analysis undertaken for the US Congressional EMP Commission, FERC and for FEMA under US Presidential Executive Order 13407, indicates that severe geomagnetic storms that occur at a 1 in 30 year to 1 in 100 year frequency may be one of the most important hazards and is certainly the least understood threat to the reliable operation of the power networks. FERC has recently proposed new regulations to harden the US Grid for these storms. Come prepared to learn from one of the principal contributors to the 2008 US National Academy of Sciences Report on "Severe Space Weather Events—Understanding Societal and Economic Impacts".

Kappenman has also provided extensive background information and formal testimony to the US Congress on EMP and geomagnetic storm threats to the US power grid infrastructure and his analysis work on GMD has been the primary underpinnings of pending FERC Regulations.

The final speaker slated for Sarasota is going to bring out the "How To" in all of us! Trade-shows can be a smart investment, writing orders, building your brand...or they can be just another marketing expense. In this fast-paced, information-rich

presentation, trade-show marketing expert, **Jefferson Davis**, President of Competitive Edge, will present a 10-step process, revealing the unique perspectives and specific strategies that have helped his clients achieve over a half a billion dollars in results from tradeshow.



### For the EGSA Member Who Loves Competition

Seeking a more active networking opportunity on Tuesday? Look no further than the annual EGSA Golf and Fishing Tournaments! Voted one of America's top golf courses (ZAGAT Survey 2007-2010), the Legacy Golf Club is an upscale, 18-hole championship, different from anything found in the region. Offering the level of service and conditions found at world-class private facilities, this award-winning Arnold Palmer-signature designed course has earned its reputation as one of the premier courses in Southwest Florida.

The course features elevated multiple tees, and virtually every hole is framed with sand and water. What makes this course unique is the 360-foot wide fairways on all corridors making the look very dramatic and visually challenging while still approachable to all players. Legacy Golf Club has received great recognition and ratings from some of the major publications. Best Places to Play and 4 1/2 STARS from the readers' of Golf Digest 2008-2010.

Ready to reel in the BIG fish? We have arranged an exciting excursion to the inshore reefs of the Gulf of Mexico with our



### New for Sarasota

The Awards Reception & Banquet will be hosted off-site for the Spring Convention this year at the Ringling Brothers Museum. Join us in their lush gardens for a memorable night of networking, honoring fellow members for the achievements, great entertainment and fun!

The entertainment for the evening will feature a band called US-1. Highway US-1 is the route from Maine to Key West, Florida. The band US-1 is pointed in the same direction – SOUTH! This wonderful Jimmy Buffett cover band will bring an island vibe to the EGSA Annual Awards Reception & Banquet on Monday night. Hear the steel drum, feel the island beat then, put the lime in the coconut and let US-1 entertain us beneath the stars!

Up for a "3 Hour Tour"? You just haven't experienced the west coast of Florida, unless you've seen it by boat and this networking opportunity will not disappoint! Make plans to get aboard the Marina Jack II, Sarasota's luxurious lunch/dinner cruising yacht. Relax and cruise through the intercoastal waters of the Gulf of Mexico while enjoying a delicious lunch, with outstanding views and world-class service. This is one "3-hour tour" you won't want to miss!

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[www.egsa.org/spring](http://www.egsa.org/spring)



*The 2013 EGSA Spring Convention Awards Reception & Banquet will be held, under the stars, at the picturesque Ringling Brothers Museum.*





**2013 EGSA Spring Convention**  
**Power in Paradise**  
**Sarasota Florida**

SUNDAY, March 17th	
10:00 a.m. - 12:00 p.m.	Registration Desk Open
12:00 - 6:00 p.m.	Exhibitor Showcase Set-up
4:00 - 6:00 p.m.	Registration Desk Open
5:00 - 6:00 p.m.	First-Time Attendees/ New Members Reception*
6:00 - 7:30 p.m.	President's Reception
MONDAY, March 18th	
7:00 - 11:45 a.m.	Registration Desk Open
7:00 - 7:30 a.m.	Exhibitor Showcase Set-up
7:30 - 8:30 a.m.	Exhibitor Showcase/Breakfast
8:30 - 8:45 a.m.	President's Opening Remarks
8:45 - 9:45 a.m.	Opening Keynote Market Signals: What the Financial Markets are Telling Us Now
9:45 - 10:15 a.m.	Exhibitor Showcase/Break
10:15 - 11:00 a.m.	Funny Business - How to Make Sure Your Customer Service Isn't a Joke
11:00 - 11:45 a.m.	University of Miami Medical Center Case Study
12:00 - 1:00 p.m.	Welcome Lunch**
1:00 - 5:00 p.m.	Committee Meetings
6:30 - 10:00 p.m.	Awards Reception & Banquet**
TUESDAY, March 19th	
7:30 a.m. - 12:00 p.m.	Registration Desk Open
7:30 - 8:30 a.m.	Exhibitor Showcase/Breakfast
8:30 - 9:15 a.m.	Severe Space Weather: Preparing US Power Grids and Understanding the Societal and Economic Impacts
9:15 - 9:45 a.m.	Meeting of EGSA Members
9:45 - 10:15 a.m.	Exhibitor Showcase/Break
10:15 - 11:00 a.m.	The Tradeshow Turnaround Program™: Converting Tradeshows from Expensive Appearances to Profit Centers
11:00 - 11:45 a.m.	Superstorm Sandy – Lessons Learned from a Service Provider
1:00 - 5:00 p.m.	Networking Events
7:00 - 8:30 p.m.	Closing Reception

\* First-Time Attendees/ New Members Reception is by invitation only  
\*\* Welcome Lunch and Awards Reception & Banquet are being held offsite

outfitter, C.B. Saltwater Outfitters. Compete for trophies and bragging rights while we spin fish for giant tarpon, bonito, cobia, tripletail, jack crevalle, kingfish and Spanish mackerel.

### Where the Rubber Meets the Road – Participating in an EGSA Committee Meeting Brings Value to the Association and You!

Ever wonder how all of our great initiatives become plans, programs and projects? Look no further than an EGSA Committee Meeting for that level of detail! For almost 50 years, EGSA has consistently brought value to the On-Site Power Industry. EGSA Committee meetings are the singular best way to stay abreast of your area of interest.

They are comprised of volunteer EGSA Members who contribute their knowledge and time to forward the Association's activities. Committees meet in person twice a year – during the Spring and Fall, to review projects in their zone of responsibility and recommend actions to the Board of Directors.

There is no formal committee sign-up process in EGSA. If you are interested in participating on a committee, you have that opportunity when you register for the Convention! Simply sign up, show up and join in. Each Committee will welcome your participation!

### Sponsorship and Event Program Opportunities

We are still looking for EGSA Members to sponsor the event, along with advertising in the event program! If you are looking to stand out in the crowd, maximizing your exposure with a cost-effective sponsorship to create more impact and add more to the EGSA Convention experience, call Jalane Kellough or Kim Giles today.



### Never Been to EGSA Event? Take a Look at What You Have Been Missing!

[www.youtube.com/user/EGSAVideo/featured](http://www.youtube.com/user/EGSAVideo/featured)

We had more than 130 new Members join us last year collectively between Austin and Milwaukee. These are the kind of results we want to continue! If you like what you see, please let us know! Also, don't forget to subscribe to the EGSA YouTube Channel while you are there. We'd like to keep you informed as new videos become available.

Shake off old man winter early this year and join us down South as we bring "Power in Paradise" to Sarasota, Florida this year! ■

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## 2013 EGSA Board Members

As a part of EGSA bylaws and in order to support continuity within the Association, EGSA has policies in place to provide our Membership with ample leadership opportunities. Annually, three Directors “roll off” of the Board roster and three new ones are elected. Similarly, with regard to the EGSA Officers, the Immediate Past President leaves the Board; the President becomes the Immediate Past President and so on to fulfill the officer positions which are: President, President-Elect, Vice President, Secretary-Treasurer and Immediate Past President.

Our election process this year provided a unique situation. One of our current Board Members was nominated and approved to become a Member of the Executive Board, requiring him to relinquish his current position held on the Board in lieu of becoming the 2013 EGSA Secretary-Treasurer. This afforded EGSA with four Director positions to fill, instead of three.

We are happy to showcase not only the 2013 EGSA Board, but also a formal list of their accomplishments. While a list like this can never reflect all of a Member’s valuable input, it is a great reflection on their “formal accomplishments” on behalf of the Association.

These folks are to be commended for their leadership and volunteer spirit. Without Members like the ones showcased here, as well as others who have shaped the EGSA community, we would not be where we are today. We salute the 2013 EGSA Board of Directors! ■



**Do you display the EGSA member logo on your website?**

**Do you use the EGSA logo on your printed marketing collateral?**

**Were you aware that we contemporized the EGSA logo in 2012?**

Membership is a two-way street! One of the privileges of EGSA Membership is to identify yourself in the On-Site Power Industry as a trusted resource by using the membership logo on your company’s advertisements, website, business cards or stationary.

**Including the EGSA logo on your site lets people know that:**

- Your company is committed to staying on top of the industry news that’s important to your business;
- Your membership shows you have a voice and are committed to staying active within the on-site power community; and
- Your company sets itself apart from its competitors.

Please download the EGSA logo and proudly display it on your company’s website and collateral materials. We have (hopefully) made it easy for you to download a high resolution version for printed collateral, as well as one for web content.

Please visit [www.egsa.org/Membership.aspx](http://www.egsa.org/Membership.aspx) to download the EGSA Member logos. ■

## 2013 EGSA Officers



### **Debra Laurents – 2013 President**

*Cummins Power Generation, Shoreview, MN*

Executive Board: 2010-current  
 Director: 2006-2008  
 Committee Chair: Strategic Long Range Plan Chair (SLRP)  
 Committee Officer: Technician Certification 2006-2007  
 Membership 2008-2011  
 Committee Member: Technician Certification 2004-2005  
 President's Award: 2012



### **Vaughn Beasley – 2013 President Elect**

*Ring Power Corporation, St. Augustine, FL*

Executive Board: 2011-current  
 Director: 2008-2010  
 Committee Chair: Distributor/Dealer 2009-2011  
 Committee Officer: Distributor/Dealer Council  
 2006-2008  
 Committee Member: Technician Certification 2008-current



### **Ed Murphy – 2013 Vice President**

*Power Search, Inc., Hampstead, NH*

Executive Board: 2012-current  
 Director: 2003-2005  
 Committee Chair: Membership 2003  
 Communications & Convention  
 2011-current  
 Committee Officer: Communications &  
 Convention 2007-2010  
 Timmler Award: 2003



### **Robert Hafich – 2013 Secretary-Treasurer**

*Emergency Systems Service Co., Quakertown, PA*

Executive Board: 2013-current  
 Director: 2001-2003, 2011-2012  
 Committee Chair: Nominating 2004  
 Membership 2008-2011  
 Technician Certification 2009-2011  
 Committee Officer: Membership 2004-2007  
 Technician Certification 2004-2008  
 Carpenter Award: 2010  
 Timler Award: 2012  
 President's Award: 2012



### **Michael Pope – Immediate Past President**

*Clariant Corp., Needham, MA*

Executive Board: 2009-current  
 Director: 2005-2007  
 Committee Chair: Education 2003-2006  
 Green 2009-2010  
 Committee Member: Technician Certification 2006-2009  
 Reference Book Author: 4th & 5th Editions  
 Timmler Award: 2006  
 Carpenter Award: 2009  
 Wright Award: 2003  
 School Instructor: 2007-current

## 2013 EGSA Directors



### **Brian Berg – Director**

*Bergari Solutions, LLC, Rosemount, MN*

Director: 2011-2013  
 Committee Chair: Market Trends 2009-2011  
 Committee Officer: Market Trends 2007-2008



### **Katie Evans – Director**

*Diesel & Gas Turbine Publications, Inc. – Milwaukee, WI*

Director: 2013-2015  
 Committee Chair: International Trade 2012-current  
 Committee Officer: International Trade 2011-2012



### **Steve Evans – Director**

*ASCO Power Technologies, Denver, CO*

Director: 2012-2014  
 Committee Chair: Green 2011-2012  
 Committee Officer: Green 2009-2010  
 Reference Book Author: 5th Edition  
 School Instructor: 2010-current



### **Todd Lathrop – Director**

*Eaton Corporation, Moon Township, PA*

Director: 2012-2014  
 Committee Chair: Codes & Standard Surveillance  
 2011-current  
 Committee Officer: Codes & Standard Surveillance  
 2007-2010  
 Reference Book Author: 5th Edition  
 School Instructor: 2005-current



### **Rick Morrison – Director**

*Nixon Power Services Co., Charlotte, NC*

Director: 2013-2015  
 Committee Officer: Distributor/Dealer 2011-current



### **Larry Perez – Director**

*Basler Electric Co., Highland, IL*

Director: 2011-2013  
 Reference Book Author: 3rd, 4th & 5th Editions  
 School Instructor: 1995-1998



### **Walter Petty - Director**

*Atlantic Power Solutions, Siler City, NC*

Director: 2013-2015  
 Committee Officer: Green Committee 2011



### **Lanny Slater – Director**

*GFS Corp., Weston, FL*

Director: 2013-2015  
 Committee Chair: 2010-2012  
 Committee Officer: International Trade 2009-2012



### **Kyle Tingle – Director**

*John Deere Power Systems, Waterloo, IA*

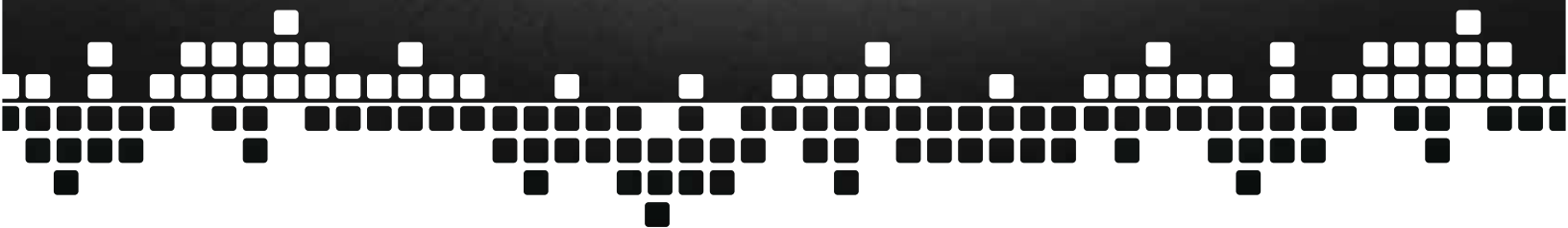
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# Structured Generator Maintenance: The Key to Maximizing Useful Engine Life and Minimizing Downtime

By Scott Spidle, VP, Rental and Service, Worldwide Power Products

“Catastrophic Failure” is a term most company executives never want to utter (or read in a report). Yet, that outcome is often what they and their personnel encourage by not performing appropriately timed and detailed generator maintenance. For Worldwide Power Products (WPP)—a firm that rents, services and sells generators—well-documented, best-practices generator maintenance is mission critical. As a result, we have developed a structured, detailed generator maintenance program to ensure not a single maintenance item falls through the cracks. In this article, we’ll share the strategies that helped us establish this successful program.

## More than the Occasional Check-Up

It’s a given that diesel generator sets require regular maintenance to provide reliable quality power for the longest possible service life. Yet, we continue to be amazed at the number of companies with whom we have contact whose personnel have accidentally (or intentionally; usually to save budget) cut corners or simply overlooked this critical maintenance.

Sometimes, an in-house technician lacks detailed knowledge of generator maintenance requirements. Other times, a firm may be trying to maximize production time by taking a generator down for maintenance on a less-than-optimal schedule. Some companies think if they don’t use their stand-by generator very often, they only need to crank it up periodically and run it; maybe change the oil; but do little else. No matter the reason, generators don’t always get the attention they need. The result can be failure of a generator that is costly to repair or replace, as well as downtime that affects a company’s revenue stream.

Some companies look to official documents, such as those provided by safety officials like the local Fire Marshall, for compliance guidance. Unfortunately, these documents are often vague and easy to misconstrue.

For example, the Houston Fire Department Life Safety Bureau Standard (HFD LSB) requires monthly, documented 30-minute testing of stand-by generators with load of not less than 30% of the nameplate kW rating of the electrical power system. The LSB documentation also stipulates annual load tests be performed by an “authorized generator service company” at 25% of nameplate rating for 30 minutes, 50% of nameplate rating for 30 minutes and, finally, 75% of nameplate rating for one hour. The load tests must include cold starts.

These requirements, in addition to “routine monthly testing and maintenance in accordance with manufacturer’s guidelines and NFPA 110” represent the maintenance required for compliance. While these guidelines are minimally sufficient in theory, the lack of detail regarding execution can cause confusion and possible omission.

Add to this the need to integrate city, county and state electrical and mechanical codes, manufacturer’s recommendations, and NFPA 110 requirements (which have been updated for 2013) and the maintenance picture can become overwhelming for many firms. Finally, some of the “best practices” maintenance inspections we recommend aren’t detailed in any of these documents—if they are mentioned, at all.

## Creating a Structure

To avoid any possible confusion or omissions regarding generator maintenance, companies should create a highly structured maintenance program. Two must-have features of such a program, in our view, are computerized maintenance management systems (CMMS) and detailed maintenance checklists and worksheets. We also recommend a formal auditing process (preferably, built into the CMMS) to ensure compliance.

This may sound like overkill for firms with only one genset, but consider the alternative. Some maintenance routines, if overlooked, don’t always raise a red flag that will prompt you to make adjustments right away. For example, some will not prevent a generator from starting but instead will rapidly accelerate deterioration. (More about this in Commonly Overlooked Preventive Measures on page 30).

A few months or even a year down the road when the generator fails unexpectedly—usually when it is needed most—the damage will have been done. Repairing the generator may cost thousands, if not tens of thousands, of unbudgeted dollars. In addition to the repair cost, the downtime will result in lost revenue since the business owner cannot operate his or her business.

If the business had implemented a structured maintenance program, not only would it have avoided damage from deferred maintenance, but it also would have been alerted to possible failures during scheduled load tests, quarterly inspections or annual inspections when the generator wasn’t being relied upon.

If your company uses generators for client projects or mission-critical operations, best-practices generator maintenance is even more important. If a generator fails unexpectedly, the expense of contract delay fees or a lost contract, while considerable, is only the tip of the iceberg. The cost of lost customer goodwill is incalculable.

## Step One: Computerized Maintenance Management

CMMS is a foundation of good generator maintenance. Depending on your industry, you may already use a maintenance management solution for other assets, such as heavy equipment or fleet vehicles. (Note that CMMS solutions are also called Enterprise Asset Management [EAM] or Computerized Maintenance Management Information System [CMMIS] solutions.)

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If you already use an asset management solution, it may be sufficient to accommodate your needs. However, make sure it offers the flexibility and breadth to effectively support your generator maintenance program. (If you are still using Excel spreadsheets or other outdated technology to track assets and their maintenance, I encourage you to bring your solution up to date as soon as possible.)

WPP found a practical solution in SaaS-Maint ([www.saasmaint.com](http://www.saasmaint.com)) a cloud-based CMMS solution that integrates with Salesforce. The Salesforce integration offers our sales people real-time visibility into the status of our sale and rental equipment, which is a valuable benefit for us. For those who use generators but don't sell or rent them, that particular feature won't be as important.

However, some features to look for in a CMMS solution for your generator (and other equipment or facilities) include:

- Flexible scheduling models (e.g. calendar-based, meter-based or custom)
- Automated generation of reminders and warning alerts on a repeating or custom basis
- Visibility of and reporting on work-order history by various criteria
- Maintenance delinquency tracking and reporting
- Reusable work order models (to define and store common and recurring parts, labor and detailed work instructions)
- Warranty reminders

If your solution is cloud-based, you'll also be able to access your records and perform maintenance in the event of a power outage or other emergency, provided you can access the Internet.

## Step Two: Worksheets and Data Collection

Although computerized asset maintenance management is an important innovation, nothing can replace good old-fashioned thoroughness. Creating inspection/maintenance/testing checklists and worksheets, whether they are paper-based or electronic (or both) is an excellent way to ensure nothing is overlooked.

To create your worksheets, a good start is the manufacturer's O&M manual, which should include a maintenance interval checklist and other recommendations. However, O&M recommendations are often based on "average" usage. In demanding environments, maintenance frequency will necessarily be higher. For example, generators for prime or continuous use in marine environments should be maintained every 250 hours—that's every 10 days.

Furthermore, O&M manuals don't always include the individual components of each recommended operation, just as an automobile manual says "oil change" but doesn't remind you to check for leaks at the same time.

Detailed worksheets are important for more than inspection and testing thoroughness, or even for compliance purposes. They also provide an opportunity to record key measurements. Once these are loaded into the CMMS, it's easy to compare results from one maintenance service to the next. Extreme variations likely indicate faulty performance of the unit. This gives you the opportunity to pinpoint impending problems before they accelerate to the point of unnecessarily expensive repairs or, in the worst case, generator failure.

**Maintenance Reports:** Years of experience have enabled WPP to develop a comprehensive, 82-point Maintenance Service Report (Figure 1) that covers all the best-practices steps for generator inspection and maintenance service. These run the gamut

from checking the lubrication, air filtration and engine exhaust systems to checking the wiring connections of the transfer switch, to determining the amount of diesel fuel in the fuel tank and whether or not water is present.

This checklist specifies important measurements and provides an area for technicians to record data from the current inspection. It also has an area for the technician to list parts (quantity, part number and description) installed during the session. Checking for worn or improperly operating parts is a critical step in proactive maintenance. Finally, the technician must sign and date the report and provide his name for quality-control monitoring purposes.

**Load Test Reports:** Periodic load testing (a separate operation from general maintenance) presents another opportunity to monitor and record a pool of data and then transfer it to the CMMS solution for analysis and reporting. Figure 2 shows a report for a load test performed by WPP technicians.

Note that it records far more than the time and percentage of load under which the generator ran for a particular period. Here, the technicians record such variables as oil, coolant and fuel (start and end) levels, volt meter and amp recordings, oil pressure, water temperature and more.

## Record Maintenance and Auditing

A CMMS system and its corresponding checklists/worksheets are only as good as the people who maintain them. Consequently, you'll want to designate specific members of your

Figure 1: 82-pt Maintenance Service Report

WORLDWIDE POWER PRODUCTS									
MAINTENANCE SERVICE REPORT									
Customer: Villa Oreste, 1000 Uptown Park Boulevard, Houston, TX 77066									
Work Order #: 15815									
Engine: Generator #1									
Make: Caterpillar, Model: 3512B, Serial: 3512B0000									
Technician: Chris T. Van Metre									
Call Date: 05-Jun-12, Time In: 9:00 AM, Time Out: 12:25 PM									
Service: Load Bank Test									
Engine Fluids: Oil Level, Coolant Level, Starting Fuel Level, Ending Fuel Level									
Test Equipment: Make: Fluke, Model: 8846A, Serial: 8846A0000									
Time	Hour Meter	Volt Meter (Volts)	Frequency (Hz)	Power (KW)	Leg "A" Amps	Leg "B" Amps	Leg "C" Amps	Oil Pressure (PSI)	Water Temp (Fahrenheit)
9:44 AM	347	484	60.3	0	0	0	0	62	134
9:45 AM	347	482	60.3	174.4	209	209	207	68	175
10:00 AM	347	482	60.3	174.5	209	209	208	67	176
10:15 AM	347	482	60.3	174.5	209	209	209	65	180
10:30 AM	347	481	60.3	317.5	381	381	377	62	182
10:31 AM	347	481	60.4	317.5	381	381	377	62	184
10:45 AM	348	481	60.4	317.5	381	380	377	62	188
10:46 AM	348	481	60.4	471.8	564	563	557	58	190
11:02 AM	348	482	60.3	471.8	564	563	557	58	190
11:17 AM	348	482	60.3	471.8	564	563	557	59	190
11:30 AM	349	482	60.3	471.9	565	563	557	59	191
11:47 AM	349	482	60.3	471.8	564	563	557	59	191
11:55 AM	349	484	60.3	0	0	0	0	68	176

Figure 2: Load Test Report

## Commonly Overlooked Preventive Maintenance Measures

Short of industrial sabotage, no one intentionally, completely overlooks generator maintenance, but many companies have misconceptions about how often and how thoroughly they need to perform tests. The worst-case scenario for generator maintenance I have seen was a customer that tested a standby generator every five years. Needless to say, everything was wrong with that generator.

This is an extreme example, but every day, we see companies whose inadequate generator maintenance has caused problems. The issue might be a back-up generator under a building or in a remote place that wasn't physically inspected closely or often enough. Or, perhaps maintenance on a daily-use generator was deferred an extra week for some reason; then forgotten. Employee turnover; budget cuts that necessitate postponing service; any number of reasons can derail all or a portion of planned generator maintenance.

**Following are some procedures that many companies either misunderstand or fail to perform.**

**Incorrect maintenance intervals:** This is a common problem, across the board, among firms with generators. Many simply don't follow the manufacturers' recommendations. Others fail to time intervals appropriately.

Specific examples include:

- **Standby generators:** Many firms assume that infrequent use means infrequent problems. Standard maintenance (including changing oil and oil filters) should be performed on standby generators based on the calendar, not on hours of use (with quarterly inspections and annual replacement of oil and filters, load tests and fuel filtering.) Once a week, operators should check fuel for the presence of water and contaminants (see below) and physically inspect the unit to ensure corrosion, vermin and other destructive influences haven't compromised the genset. If everything checks out, they should start the generator and run it for 15 minutes. (If problems are detected, they should be resolved, first.)
- **Dusty environments:** Dust is very damaging to engines and generators. Generators in dusty environments should be checked daily or as recommended by the manufacturer.

**Lack of or Inadequate Fuel Maintenance:** Fuel is the lifeblood of an engine, and when it is even slightly contaminated problems are sure to arise.

- **Monthly "dipstick checks":** Water—and the algae it supports—are very damaging to engines. We recommend monthly checks with a product called Color Cut, a dipstick-style product that enables a quick check for the presence of water. It's also important to check fuel levels. The lower the level, the greater the chance of condensation, which can accumulate quickly, especially in outdoor environments. Topping off your tanks should be done at least quarterly during inspection.
- **Fuel Checks with Every Refuel:** Operators should also check for the presence of water before and after every fuel refill. Unscrupulous fuel delivery operators have been known to sell contaminated fuel. If any water is present or introduced, fuel refills can stir up the water and blend it in with the fuel. The engine may still run, but after shutdown, the water will return to the bottom of the tank, encouraging algae growth and causing deterioration. Diesel fuel contains no rust inhibitors, so you can imagine the damage that can be done over time.

- **Fuel Analysis:** If water is present in a tank, it's not enough to siphon off the water. Operators should test fuel samples for the presence of algae, which builds up when water sits in a tank. Algae can clog a fuel filter and, if it continues down the line, destroy a fuel pump, as well.

**Battery Testing:** Many firms check cranking batteries (like they check everything else) by seeing if the generator cranks and runs for 15 minutes. Using a refractometer during maintenance testing gives a much better indication of battery condition and how the battery will perform under heavy load over a period of time. A load test should also be performed by cranking the engine and measuring the voltage drop across the battery. Voltage should not drop below 75% of the system voltage during cranking.

**Oil Analysis:** Oil analysis can determine if your oil is doing its job of protecting the engine. There are four types of Analysis.

- Wear Rate monitors and tracks metal wear particles, contaminants and oil additive package elements.
- Oil Condition compares used oil to new oil to see if it is providing adequate lubrication and protection.
- Oil Cleanliness determines if abrasive contaminants are causing accelerated wear.
- Additional Tests detect water, glycol or fuel in oil.

Oil Analysis at quarterly intervals detects potential problems early, reduces repair costs and lessens the impact of downtime.

**Annual Load Tests with Full Reports:** Annual load tests are required in many cities and states by Fire Marshalls and other safety officials as well as NFPA 99, NFPA 110 and Joint Commission Standards. We often see companies that don't perform them. Testing the reliability of your generator by running it for 15 minutes periodically is like testing your car by driving it to the grocery store once a week. There's no guarantee it will perform for long periods under continual use. If your generator is going to fail under load, it will do so during the annual load test, averting failure during an emergency when the unit is needed most.

There are any number of seemingly minor routines that companies don't know (or don't know how) to perform, from checking for pinhole leaks to load-testing automatic transfer switches and other electrical connections. Space limits us from providing any more examples; the ones provided here should sufficiently illustrate the importance of detailed, structured generator maintenance.



## NEW EGSA MEMBERS

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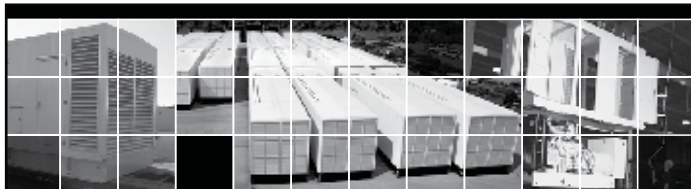
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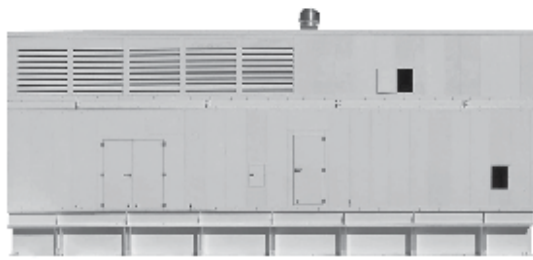
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Continued from page 29

Asset ID	Asset Description	Work Order ID	Work Order Description	Status	Date
100001	Generator 100001-001	WO-000001	Generator 100001-001	Completed	10/1/2011
100002	Generator 100002-001	WO-000002	Generator 100002-001	Completed	10/1/2011
100003	Generator 100003-001	WO-000003	Generator 100003-001	Completed	10/1/2011
100004	Generator 100004-001	WO-000004	Generator 100004-001	Completed	10/1/2011
100005	Generator 100005-001	WO-000005	Generator 100005-001	Completed	10/1/2011
100006	Generator 100006-001	WO-000006	Generator 100006-001	Completed	10/1/2011
100007	Generator 100007-001	WO-000007	Generator 100007-001	Completed	10/1/2011
100008	Generator 100008-001	WO-000008	Generator 100008-001	Completed	10/1/2011
100009	Generator 100009-001	WO-000009	Generator 100009-001	Completed	10/1/2011
100010	Generator 100010-001	WO-000010	Generator 100010-001	Completed	10/1/2011
100011	Generator 100011-001	WO-000011	Generator 100011-001	Completed	10/1/2011
100012	Generator 100012-001	WO-000012	Generator 100012-001	Completed	10/1/2011
100013	Generator 100013-001	WO-000013	Generator 100013-001	Completed	10/1/2011
100014	Generator 100014-001	WO-000014	Generator 100014-001	Completed	10/1/2011
100015	Generator 100015-001	WO-000015	Generator 100015-001	Completed	10/1/2011
100016	Generator 100016-001	WO-000016	Generator 100016-001	Completed	10/1/2011
100017	Generator 100017-001	WO-000017	Generator 100017-001	Completed	10/1/2011
100018	Generator 100018-001	WO-000018	Generator 100018-001	Completed	10/1/2011
100019	Generator 100019-001	WO-000019	Generator 100019-001	Completed	10/1/2011
100020	Generator 100020-001	WO-000020	Generator 100020-001	Completed	10/1/2011
100021	Generator 100021-001	WO-000021	Generator 100021-001	Completed	10/1/2011
100022	Generator 100022-001	WO-000022	Generator 100022-001	Completed	10/1/2011
100023	Generator 100023-001	WO-000023	Generator 100023-001	Completed	10/1/2011
100024	Generator 100024-001	WO-000024	Generator 100024-001	Completed	10/1/2011
100025	Generator 100025-001	WO-000025	Generator 100025-001	Completed	10/1/2011
100026	Generator 100026-001	WO-000026	Generator 100026-001	Completed	10/1/2011
100027	Generator 100027-001	WO-000027	Generator 100027-001	Completed	10/1/2011
100028	Generator 100028-001	WO-000028	Generator 100028-001	Completed	10/1/2011
100029	Generator 100029-001	WO-000029	Generator 100029-001	Completed	10/1/2011
100030	Generator 100030-001	WO-000030	Generator 100030-001	Completed	10/1/2011
100031	Generator 100031-001	WO-000031	Generator 100031-001	Completed	10/1/2011
100032	Generator 100032-001	WO-000032	Generator 100032-001	Completed	10/1/2011
100033	Generator 100033-001	WO-000033	Generator 100033-001	Completed	10/1/2011
100034	Generator 100034-001	WO-000034	Generator 100034-001	Completed	10/1/2011
100035	Generator 100035-001	WO-000035	Generator 100035-001	Completed	10/1/2011
100036	Generator 100036-001	WO-000036	Generator 100036-001	Completed	10/1/2011
100037	Generator 100037-001	WO-000037	Generator 100037-001	Completed	10/1/2011
100038	Generator 100038-001	WO-000038	Generator 100038-001	Completed	10/1/2011
100039	Generator 100039-001	WO-000039	Generator 100039-001	Completed	10/1/2011
100040	Generator 100040-001	WO-000040	Generator 100040-001	Completed	10/1/2011
100041	Generator 100041-001	WO-000041	Generator 100041-001	Completed	10/1/2011
100042	Generator 100042-001	WO-000042	Generator 100042-001	Completed	10/1/2011
100043	Generator 100043-001	WO-000043	Generator 100043-001	Completed	10/1/2011
100044	Generator 100044-001	WO-000044	Generator 100044-001	Completed	10/1/2011
100045	Generator 100045-001	WO-000045	Generator 100045-001	Completed	10/1/2011
100046	Generator 100046-001	WO-000046	Generator 100046-001	Completed	10/1/2011
100047	Generator 100047-001	WO-000047	Generator 100047-001	Completed	10/1/2011
100048	Generator 100048-001	WO-000048	Generator 100048-001	Completed	10/1/2011
100049	Generator 100049-001	WO-000049	Generator 100049-001	Completed	10/1/2011
100050	Generator 100050-001	WO-000050	Generator 100050-001	Completed	10/1/2011
100051	Generator 100051-001	WO-000051	Generator 100051-001	Completed	10/1/2011
100052	Generator 100052-001	WO-000052	Generator 100052-001	Completed	10/1/2011
100053	Generator 100053-001	WO-000053	Generator 100053-001	Completed	10/1/2011
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100056	Generator 100056-001	WO-000056	Generator 100056-001	Completed	10/1/2011
100057	Generator 100057-001	WO-000057	Generator 100057-001	Completed	10/1/2011
100058	Generator 100058-001	WO-000058	Generator 100058-001	Completed	10/1/2011
100059	Generator 100059-001	WO-000059	Generator 100059-001	Completed	10/1/2011
100060	Generator 100060-001	WO-000060	Generator 100060-001	Completed	10/1/2011
100061	Generator 100061-001	WO-000061	Generator 100061-001	Completed	10/1/2011
100062	Generator 100062-001	WO-000062	Generator 100062-001	Completed	10/1/2011
100063	Generator 100063-001	WO-000063	Generator 100063-001	Completed	10/1/2011
100064	Generator 100064-001	WO-000064	Generator 100064-001	Completed	10/1/2011
100065	Generator 100065-001	WO-000065	Generator 100065-001	Completed	10/1/2011
100066	Generator 100066-001	WO-000066	Generator 100066-001	Completed	10/1/2011
100067	Generator 100067-001	WO-000067	Generator 100067-001	Completed	10/1/2011
100068	Generator 100068-001	WO-000068	Generator 100068-001	Completed	10/1/2011
100069	Generator 100069-001	WO-000069	Generator 100069-001	Completed	10/1/2011
100070	Generator 100070-001	WO-000070	Generator 100070-001	Completed	10/1/2011
100071	Generator 100071-001	WO-000071	Generator 100071-001	Completed	10/1/2011
100072	Generator 100072-001	WO-000072	Generator 100072-001	Completed	10/1/2011
100073	Generator 100073-001	WO-000073	Generator 100073-001	Completed	10/1/2011
100074	Generator 100074-001	WO-000074	Generator 100074-001	Completed	10/1/2011
100075	Generator 100075-001	WO-000075	Generator 100075-001	Completed	10/1/2011
100076	Generator 100076-001	WO-000076	Generator 100076-001	Completed	10/1/2011
100077	Generator 100077-001	WO-000077	Generator 100077-001	Completed	10/1/2011
100078	Generator 100078-001	WO-000078	Generator 100078-001	Completed	10/1/2011
100079	Generator 100079-001	WO-000079	Generator 100079-001	Completed	10/1/2011
100080	Generator 100080-001	WO-000080	Generator 100080-001	Completed	10/1/2011
100081	Generator 100081-001	WO-000081	Generator 100081-001	Completed	10/1/2011
100082	Generator 100082-001	WO-000082	Generator 100082-001	Completed	10/1/2011
100083	Generator 100083-001	WO-000083	Generator 100083-001	Completed	10/1/2011
100084	Generator 100084-001	WO-000084	Generator 100084-001	Completed	10/1/2011
100085	Generator 100085-001	WO-000085	Generator 100085-001	Completed	10/1/2011
100086	Generator 100086-001	WO-000086	Generator 100086-001	Completed	10/1/2011
100087	Generator 100087-001	WO-000087	Generator 100087-001	Completed	10/1/2011
100088	Generator 100088-001	WO-000088	Generator 100088-001	Completed	10/1/2011
100089	Generator 100089-001	WO-000089	Generator 100089-001	Completed	10/1/2011
100090	Generator 100090-001	WO-000090	Generator 100090-001	Completed	10/1/2011
100091	Generator 100091-001	WO-000091	Generator 100091-001	Completed	10/1/2011
100092	Generator 100092-001	WO-000092	Generator 100092-001	Completed	10/1/2011
100093	Generator 100093-001	WO-000093	Generator 100093-001	Completed	10/1/2011
100094	Generator 100094-001	WO-000094	Generator 100094-001	Completed	10/1/2011
100095	Generator 100095-001	WO-000095	Generator 100095-001	Completed	10/1/2011
100096	Generator 100096-001	WO-000096	Generator 100096-001	Completed	10/1/2011
100097	Generator 100097-001	WO-000097	Generator 100097-001	Completed	10/1/2011
100098	Generator 100098-001	WO-000098	Generator 100098-001	Completed	10/1/2011
100099	Generator 100099-001	WO-000099	Generator 100099-001	Completed	10/1/2011
100100	Generator 100100-001	WO-000100	Generator 100100-001	Completed	10/1/2011

Figures 3 & 4:  
Work Order Report and a  
Work Order listing screen

staff—whether they are technicians, service associates or others—to transfer the details of each completed maintenance activity to the CMMS database.

Some CMMS solutions support data capture at the maintenance site via an iPad or other tablet computer, from which it is uploaded to the CMMS. This is a sophisticated approach that can streamline the maintenance process, reduce errors and eliminate multiple entry points. However, if you have only a few units to care for, old-fashioned paper forms may be the way to go. Once the information is loaded to the CMMS system, companies can generate reports and analyses (these vary with the chosen solution) for comparison and compliance purposes. Figures 3 and 4 show a page from a Work Order Report and a Work Order listing screen, respectively, from SaaSMaint.

Auditing can often be performed by the CMMS solution directly, with alerts being generated if, for example, some issue causes a maintenance service to be interrupted or terminated prematurely. Similarly, the CMMS solution will report on delinquent maintenance activities until they are marked complete.

## Final Thoughts

Developing a robust, sufficiently documented generator maintenance strategy and program takes time and effort on the front end. However, the rewards you reap will more than make up for the expense. Properly maintained generators last longer and operate more efficiently, optimizing generator life and reducing overall life-cycle cost.

Furthermore, with the program in place, you can proactively schedule maintenance events to minimize labor and overhead expense. You'll also be ready to respond nimbly and confidently if a special project necessitates an unexpected scheduling change.

Over time, you'll be able to see if these expensive assets are providing the reliability levels claimed by the manufacturer, and if you decide to sell a generator, your documentation will garner you the highest possible price. Finally, you'll minimize the

expense and disruption of unplanned downtime, which is for many firms the point of a generator, in the first place.


If the information shared in this article is daunting, you might be a candidate for outsourced maintenance service. Smaller firms frequently find that the best way to ensure professionalism and thoroughness is by hiring specialized experts to handle generator testing and maintenance. Options abound, from manufacturer-sponsored maintenance programs to third-party providers such as WPP.

No matter what you decide, don't defer creating or finding an appropriately detailed and well-documented generator maintenance program. The worst time to realize your maintenance routines are inadequate is when the generator fails you at a critical time. ■

## About the Author

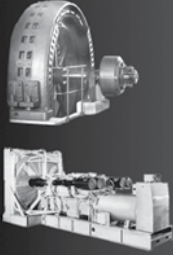
Scott Spidle oversees Worldwide Power Products' rental fleet and the service team that supports it. With more than 18 years of experience in operations and management, Spidle has completed numerous projects where he successfully developed and implemented operating procedures. Recognized by Forbes Magazine in 2011 as one of America's most promising companies, Worldwide Power Products specializes in power generation equipment including new and used engines and generator sets. For more information, visit [www.wppowerproducts.com](http://www.wppowerproducts.com).

Worldwide Power Products Sales Engineer Ron Bernucho, Service Manager John Agnes, Lead Service Technician James Armstrong and Service Technician Robert Germany also contributed to this article.







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# Application for Membership

## ELECTRICAL GENERATING SYSTEMS ASSOCIATION

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E-Mail: [e-mail@EGSA.org](mailto:e-mail@EGSA.org) • World Wide Web: [www.EGSA.org](http://www.EGSA.org)

*Under the leadership of its Board of Directors and operating through its various committees and staff, EGSA strives to educate, provide networking opportunities and share relevant knowledge and trends with industry professionals including manufacturers, distributor/dealers, engineers, manufacturer representatives, contractor/integrators and others serving On-Site Power consumers.*

### 1. Contact Information

*Please type or print all information in upper and lower case (NOT ALL CAPS!)*

Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State/Province \_\_\_\_\_  
Zip/Postal Code \_\_\_\_\_ Country \_\_\_\_\_  
Phone \_\_\_\_\_ FAX \_\_\_\_\_  
Official Representative \_\_\_\_\_ Title \_\_\_\_\_  
Representative's E-Mail \_\_\_\_\_ Company's Web Address \_\_\_\_\_  
How did you hear about EGSA? ☐ Web site ☐ Powerline magazine ☐ Colleague ☐ POWER-GEN ☐ Other \_\_\_\_\_  
Why are you joining EGSA? ☐ Certification Program ☐ CEU Program ☐ Power Schools ☐ Buying Guide Listing ☐ Other \_\_\_\_\_

### 2. Member Classification

*Read the Membership classifications below and check the box that describes your firm's classification.*

#### I. FULL MEMBERSHIP

- ☐ **MF Manufacturer Membership**  
Any individual, sole proprietor, partnership or corporation seeking membership must apply for a Full Membership as a manufacturer if they meet one or more of the following criteria:  
1. They manufacture prime movers for power generation.  
2. They manufacture generators or other power conversion devices producing electricity.  
3. They manufacture switchgear or electrical control devices.  
4. They manufacture or assemble generator sets, UPS systems, solar power, hydropower, geothermal, or any other power production or conversion system including related components or accessories for national or regional distribution.  
5. They are a wholly owned subsidiary of a firm that qualifies under rules one through four.
- ☐ **DD Distributor/Dealer Membership**  
Any individual, sole proprietor, partnership or corporation actively engaged as a distributor or dealer for products listed under Manufacturer Membership may apply for Full Membership as a Distributor/Dealer. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.
- ☐ **CI Contractor/Integrator Membership**  
Any individual, sole proprietor, partnership or corporation actively engaged as a Contractor or Equipment Integrator of products listed under Manufacturer Membership, not bound by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product. These firms typically purchase products from a Distributor/Dealer, Manufacturer or Retailer, adding value through installation, product knowledge, relationships, unique services, etc., and then re-sell the resulting product to an end-user.
- ☐ **MR Manufacturer's Representative Membership**  
Any individual, sole proprietor, partnership or corporation actively engaged in the representation of products listed under Manufacturer Membership may apply for Full Membership as a Manufacturer's Representative. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.
- ☐ **EM Energy Management Company Membership**  
Any individual, sole proprietor, partnership or corporation engaged in energy management, including Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for Full Membership as an Energy Management Company.
- ☐ **Associate Full Membership (mark appropriate category at right)**  
Any individual, sole proprietor, academic institution, student, partnership or corporation meeting the requirements of Associate Regular Membership may apply for Full Membership at their option to enjoy the privileges of Full Membership, including the rights to vote and to serve on EGSA's Board of Directors. Initiation fees and annual dues will be assessed at the existing non-manufacturer Full Member rates.

#### II. ASSOCIATE REGULAR MEMBERSHIP

- ☐ **AA Trade Publication Membership**  
Any trade publication dealing with the electrical generating systems industry or its suppliers may apply for Associate Membership—Trade Publications.
- ☐ **AB Trade Association Membership**  
Any trade association made up of individual or company members sharing a common interest in the electrical generating systems industry may apply for Associate Membership—Allied Associations.
- ☐ **AC Engineer Membership**  
Any consulting or specifying engineer may apply for Associate Membership—Engineer. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.
- ☐ **AD End-User Membership**  
Any individual employee of a company who owns or operates electrical generating equipment and/or related switchgear or components, whose responsibility to his employer includes planning, design, installation, supervision, or service of such equipment may apply for Associate Membership—User. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.
- ☐ **AE Service Membership**  
Any individual, organization or academic institution that offers services such as research, testing or repair to the electrical generating systems industry may apply for Associate Membership—Services. Membership may either be held in the individual's name or the organization's name under this classification. Individual companies whose employer or parent organization qualifies as a Full Member, as described in the Full Membership section, do not qualify for this category.
- ☐ **AG Educational Institution Membership**  
Any postsecondary vocational-technical school or college offering on-site power generation-related instruction may apply for Associate Membership—Education Institution.
- ☐ **AR Retiree Membership**  
Any individual who retires from a member company may apply for Associate Membership—Retired. This classification does not apply to any individual who is employed more than 20 hours per week.
- ☐ **AF Student Membership**  
Any individual currently enrolled at an academic institution may apply for Associate Membership—Student.

## Application for Membership – page 2

### Dues Schedule (Use for Section 3)

	Annual Dues	Initiation Fee	TOTAL
Manufacturer.....	\$870	<del>\$200</del>	\$870
Distributor/Dealer.....	\$300	<del>\$100</del>	\$300
Contractor/Integrator.....	\$300	<del>\$100</del>	\$300
Manufacturer's Rep.....	\$300	<del>\$100</del>	\$300
Full Associate Member.....	\$300	<del>\$100</del>	\$300
Energy Management Companies.....	\$210	<del>\$100</del>	\$210
Regular Associate Member.....	\$210	<del>\$100</del>	\$210
Retiree Member.....	Complimentary	\$0	\$0
Student Member.....	Complimentary	\$0	\$0



**NOTE:** A FULL 12-MONTH DUES PAYMENT MUST BE RECEIVED WITH THIS APPLICATION. The Association's Membership Year is January 1 through December 31. Dues payments that extend beyond the first Membership Year will be applied to the second year's dues.

**FULL PAYMENT MUST BE RECEIVED WITH APPLICATION.**

### 3. Membership Dues (Please fill in the appropriate TOTAL amount from the above dues schedule.)

Membership Dues \$ \_\_\_\_\_  
 Membership Plaque (optional)\*\* \$ 49.95\*\*  
 On-Site Power Reference Book (optional)\*\* \$ 125.00\*\*  
**Florida Residents:** Add 6% Sales Tax to \*\* items \$ \_\_\_\_\_  
 Continental US Residents add \$5 shipping/handling to\*\*items. \$ \_\_\_\_\_  
 Non Continental US Residents should call EGSA  
 Headquarters for shipping charges for \*\*items. **TOTAL** \$ \_\_\_\_\_

### 4. Payment Method (Payable in US\$ drawn on U.S. bank, U.S. Money Order, or American Express)

☐ Check # \_\_\_\_\_ Amount Due \$ \_\_\_\_\_  
☐ Money Order  
☐ Mastercard ☐ Visa ☐ American Express  
 Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Print Name: \_\_\_\_\_

**5. Products/Services** Please describe the nature of your business (50 words or less, NOT ALL CAPS). If you are a Manufacturer's Representative or Distributor/Dealer, please indicate which manufacturers you represent and/or distribute for; if you are a student, please provide the name and location of your school, your major and your anticipated graduation date:

Do you buy AND sell equipment? ☐ Yes ☐ No

Do you manufacture packaged equipment? ☐ Yes ☐ No

#### Available Codes:

01 --- Batteries/Battery Chargers	09 --- Generator Laminations	19 --- Silencers/Exhaust Systems/Noise Abatement
02 --- Control/Annunciator Systems	10 --- Generator Sets	20 --- Solenoids
29 --- Education	11 --- Generators/Alternators	21 --- Switchgear and Transfer Switches (Automatic or Manual), Bypass Isolation Switches, and/or Switchgear Panels
30 --- Emission Control Equipment	12 --- Governors	22 --- Trailers, Generator Set
04 --- Enclosures, Generator Set	13 --- Heat Recovery Systems	23 --- Transformers
05 --- Engines, Diesel or Gas	14 --- Instruments and controls, including meters, gauges, relays, contactors, or switches	24 --- Uninterruptible Power Supplies
06 --- Engines, Gas Turbine	15 --- Load Banks	25 --- Vibration Isolators
07 --- Engine Starters/Starting Aids	16 --- Motor Generator Sets	26 --- Voltage Regulators
08 --- Filters, Lube Oil, Fuel or Air	17 --- Radiator/Heat Exchangers	27 --- Wiring Devices or Receptacles
28 --- Fuel Cells	18 --- Relays, Protective or Synchronizing	
03 --- Fuel Tanks and Fuel Storage Systems		

#### Enter codes here:

**Products sold:** \_\_\_\_\_

**Products rented:** \_\_\_\_\_

**Products serviced:** \_\_\_\_\_

**6. Sponsor(s):** A "Sponsor" is an EGSA Member who interested you in filling out this application. It is not mandatory that you have a sponsor for the Board to act favorably on this application; however, if a Member recommended that you consider membership, we request that individual's name and company name for our records.

Sponsor Name \_\_\_\_\_ Company Name \_\_\_\_\_

### 7. Official Representative's Authorization


Signature \_\_\_\_\_ Date \_\_\_\_\_



# Off-Grid Installation on Historical Island in the Florida Keys

## 5 Acre Island Realizes Phase I of Solar Development; Solar Replaces Diesel-Generator for Clean Energy

*MAGE SOLAR and SALT Service Inc. completed a 24 kW PV-system with battery backup on a historical island in the idyllic Florida Keys.*



Pigeon Key is located between Key West and Key Largo and is well known as a paradise for snorkelers, with its pristine turquoise waters and fascinating sea life. In sight of US Highway 1, it is accessible only by waterway or through a 2.2 mile pedestrian bridge. Without any connection to the power grid, the island—like many off-grid locations in the Keys—has been dependent on diesel generators for electricity. The fuel for these generators typically had to be transported by ferry from the mainland, which had been not only a rather expensive, but also extremely risky transport environmentally in the delicate ecosystem of the Keys.

Within this sensitive environment, the Pigeon Key Foundation operates a Marine Science Center for children as well as adults and a museum detailing the island's history. Seven of the island's twelve buildings are on the national register of historic places and a reminder of the time the island served as camp for up to 400 railroad workers in the beginning of the 20th century. Millionaire entrepreneur Henry Flagler invested a fortune in building the Overseas Railway connecting the southern tip of the Florida's mainland to Key West, an undertaking many of his contemporaries deemed impossible and that was also admirably dubbed "8th Wonder of the World" after its completion in 1912. Now the island is home to yet another innovative development: the Key's very first solar array on historical grounds.

"The installation of solar power was a natural choice," said Pigeon Key Foundation Chairman, Jason Koler. "The diesel system, while revolutionary when it was installed, became an increasing environmental and financial liability. Our mission is to protect our natural resources and with this new power source, we will continue to inspire a new generation of environmental stewards."

The solar panels provide enough electricity to run the museum, the marine center, and living quarters of the three full-time staff members living on the island at this time of year. Only in the summer season when there are a lot of visitors on the island and air conditioning is in full use, will a back-up diesel generator have to supply additional power. Limiting the generator's

use will save the Foundation about 6,000 to 8,000 gallons of diesel fuel annually. The transportation of the fuel and the operation and maintenance of the generators have been by far the highest cost factor in the Foundation's budget, weighing in at about \$80,000 per year. Although the current system is already slated to eliminate 61 tons of carbon emissions annually (the equivalent of planting 1419 seedlings growing for 10 years), the Foundation is planning on doubling the size of the solar array so the island can be solar powered 100% at all times.

Solar photovoltaic systems, like the 24 kW solar array on Pigeon Key, are a highly efficient way of harnessing the sun's energy and converting them into electricity for homes, schools, factories and businesses or, as in this case, an entire island. Besides being 100% clean and emission free, solar PV systems play a big role in reducing the carbon footprint. Another benefit of solar is the fact that there are not moving parts in solar arrays that they are virtually maintenance-free. The solar system installed on the island is guaranteed to still produce 80% of its original name plate power after 30 years and is therefore one of the highest rated systems on the market.

SALT Service Inc. is a Marathon, FL, based solar integrator who designed, developed and executed the demanding installation of the 24 kW array. All 96 of the high-yielding 250 Wp MAGE POWERTEC PLUS monocrystalline PV-modules had to be transported by boat to the island before they could be mounted onto a custom-built aluminum frame designed to withstand 180 mph wind loads.

The 1,700 sq. ft. canopy will serve as a picnic or meeting area for the thousands of visitors who can now enjoy the stunning setting of the island in the shade and the shelter of the array. An additional environmental benefit of the installation is that a special silicone seal was used to fill in the space between each panel and the run-off rain water can be reused.

In addition to the challenges of being in a flood and hurricane zone, limited to ferry access for construction, this project required coordination between the Pigeon Key Foundation, Monroe County Board of Commissioners and Building Permit personnel, SALT Service, Inc., The Tourist Development Council and the Historical Preservation Committee in addition to MAGE SOLAR and other solar product providers and specialty

## CASE STUDY

contractors. The success of this project is a great tribute to the ability of all these parties to work together during this year-and-a-half long execution period in harmony.

SALT Service, Inc. President, Chuck Meier, states "SALT is honored to have played a key role in this world class installation that will provide functional and educational benefits for many years. It was very rewarding to observe the expression on the faces of those who have been operating and maintaining the generators for years when the solar was turned on and the generator turned off. Everyone enjoyed the overwhelming 'sound of silence'."

It is not a coincidence that 50% of the project costs were covered by a grant of the Tourist Development Committee, who take the preservation of one of the world's most unique and beautiful ecosystems rather seriously. Benefitting from the completely quiet and clean energy system are not only the staff (three are full-time residents of the island) and visitors, but also the rather frequent film crews who are using the island as an

exotic backdrop for films and fashion shoots. Eliminating the background noise from generators into consideration is likely to attract even more projects from around the world. Last but certainly not least, the island's wildlife is also profiting from the renewable energy system: as the threat of a fuel spill during trans-

port or operation has been nearly eliminated, the savings in fuel costs allow the Marine Science Center to focus funds on the preservation and welfare of the spectacular flora and fauna.

MAGE SOLAR's CEO and President Joe Thomas is equally excited: "Pigeon

Key is a place of such breathtaking beauty and we couldn't be more pleased about the Foundation's decision to go solar. To realize this project was the right choice from an environmental standpoint but also critical in the continued success of the island as a prime tourist destination in one of the world's most pristine ecosystems. Our thanks and heartfelt congratulations go out to both partners, the Pigeon Key Foundation as well as SALT Service Inc. for a job most wonderfully done." ■



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### Another in Our Series of EGSA Member Company Profiles

Battery industry veteran<sup>1</sup> and M.I.T. graduate Herb Kaewert founded SENS in 1971 to address the serious shortcomings of available industrial-grade battery charging technology. SENS brought two technologies in particular into wide use: automatic boost charging and battery temperature compensation. These features substantially improved the reliability and life of stationary batteries, making applications depending on batteries more dependable.

SENS technology was a particularly good fit for emergency generator starting because these sites were unattended and frequently not climate controlled. Increased battery reliability at these sites directly translated to fewer failed genset starts. Through a network of manufacturer's representatives the company won acceptance at critical facilities including telephone switching centers, military and government installations, water treatment sites and hospitals.

### Passing the Baton; Expansion and Operational Change

To accommodate needs for expansion, Herb and his son Bill moved SENS from its roots in California to Longmont, CO in 1992 where Bill took over day-to-day operations of the company. Bill brought with him the conviction that, in addition to seeking new markets and customers, a successful company succeeds by listening to the needs of existing customers. Bill believed that a new operational approach called Lean Manufacturing was required to achieve higher customer satisfaction and stay ahead of increasing market demands for short lead-time shipments, higher quality and lower prices.

Pioneered by Toyota Motor Company, Lean dramatically improves quality, shipment speed and asset utilization. Just as important, Lean places authority and responsibility for continuing improvements on all company employees. Although it took nearly a decade to implement, Lean has paid off for SENS and its customers. Benefits include consistently fast shipments, higher quality, higher customer satisfaction, better vendor relations and increased flexibility to change production rates.

Kaewert acted on his conviction that high quality pays significant benefits to both customer and producer, and in 1996 SENS became an early adopter of the ISO 9001 quality management system. The customer relations benefits of high quality are

#### SENS

[www.sens-usa.com](http://www.sens-usa.com)

Battery industry veteran Herb Kaewert founded Stored Energy Systems (SENS) in 1971. The company was initially located in the heart of Silicon Valley, amidst a vibrant high technology culture.

Herb and his son Bill moved the company to its current location in Longmont, CO in 1992 to accommodate the needs for expansion. There, Bill took over day-to-day operations of the company.

Since 1992, the company has expanded nearly tenfold. It has continued to innovate in product development along the principles Herb established early on.

SENS is a leading, worldwide supplier of stationary battery chargers, DC power systems and stationary batteries to a variety of markets, including: engine starting, oil & gas pipeline, electric utility, power generation, and process manufacturing industries. SENS is the recipient of multiple industry awards for product innovation. Its world class LEAN production system provides customers with best-in-class quality and product delivery.

obvious. In a high velocity Lean environment, however, internal quality must also be first-rate. Each company work center, from Sales to Order Admin to Assembly, Test, Packout and Shipping must deliver defect-free output to other internal customers for the system to flow as intended. Today SENS reviews a large number of both external and internal quality indicators each month to provide early warning of potential problems. Ongoing quality initiatives include continuous stress-testing of current products, a comprehensive internal audit program, an Eight Disciplines (8-D) corrective action system and regular reviews of performance against company goals and objectives.

Independent sales organization Benroth-Nolty Inc. verified that the SENS system delivers exceptional results. Co-owner Tom Benroth reported that SENS surpasses both the service levels and delivery performance of every manufacturer he has represented over his 17 years in the manufacturer's rep business.

<sup>1</sup>Kaewert previously founded Alkaline Batteries Corporation (ALCAD), grew ALCAD to be one of the leading suppliers of Ni-Cd batteries in the U.S. and ultimately sold ALCAD to the Chloride Group (U.K.).



Co-owner Claude Noltz stated that, “We were initially skeptical of SENS’s delivery claims. But after we toured SENS’s lean manufacturing operation and watched them deliver on time every time for years we now tell everyone how great SENS’s operations really are.” Also according to Noltz, “we have had near zero field problems with SENS wonderfully designed NRG product, and when there is a problem with anything, our customers are impressed with SENS customer service.”

### SENS Today

Today SENS is the leading supplier of high reliability battery chargers to the distributed generation industry and one of the leading suppliers of DC power systems used to insure power across a wide variety of infrastructure applications including non-stop power for gas turbine power stations, oil and gas pipelines, utility substations, transportation systems, and water treatment facilities.

In the distributed generation industry, SENS’s most popular products are its NRG engine start charger and the dual micro-processor EnerGenius IQ. Each of these products brought new levels of performance, ease of use and reliability to genset customers, and are now widely specified. In 2009 both products received the Consulting and Specifying Engineer “Gold” Product of the Year award. The EnerGenius IQ also received the prestigious Innova Award from Battery Power Products Magazine in 2007 for best new technology. Both chargers were the first, and still only, battery charger families to be certified to the IBC 2000-2009 and California OSHPD seismic standards.

SENS’s NRG has earned a reputation as the most rugged and dependable engine-start charger ever built. Observed MTBF of the NRG fleet is nearly 2 million hours. Not widely known is that the NRG became the only approved engine start charger at Minuteman III ICBM installations during a recent silo repowering project. To become approved, the charger was subjected to rigorous Air Force testing for resistance to electromagnetic pulse

(EMP). Unmodified chargers performed far better than the test experts predicted.

Expanding its product line significantly beyond high performance battery chargers, SENS has become a leader in DC systems that combine storage batteries, DC power distribution and other system elements with SENS high performance chargers. These systems deliver non-stop power to critical systems that control essential infrastructure functions such as power generation & distribution, fuel pipelines, water treatment and high value manufacturing.

Enabled by its technology advancement allowing storage batteries to be safely shipped installed in their final position, SENS PowerCab DC system substantially improved customer quality, predictability and cost by pre-packaging all system elements in a single cabinet. Prior to PowerCab, DC systems shipped as individual components, requiring customer assembly on site. Today, new PowerCab variants under development will bring to market additional space utilization and energy efficiency. Power conversion efficiency, for example, will increase from below 90% to nearly 95%, cutting waste heat from the power system by nearly two-thirds. This enables control room packagers to cut size and cost of air conditioners. End users benefit through reduced energy costs.

### Company Purpose, Mission and Values

Developed by the company’s management team with input from all staff, SENS mission and values statements direct all decisions the company makes, help resolve disputes and improve collaboration. These are posted throughout SENS and are available on wallet-sized cards.

SENS’s purpose and mission statement is “Protecting critical infrastructure from shutdown due to power loss.” Kaewert indicated that SENS’s staff recognizes the importance of this work, and stressed that company staffers approach all customers with the goal of minimizing the customer’s total costs. SENS’s



statement of values is, “Passion for excellence in a collaborative environment.” To SENS, this means being innovative, treating others with respect and integrity, teamwork, keeping commitments and making regular improvements.

Kaewert believes that these statements and the intent behind them have helped coordinate activities and expectations, and help the company resist being diverted by conflicting customer demands into areas outside its core competence.

### EGSA Connection

SENS's leadership team believes strongly in contributing to our communities, and SENS is a long time EGSA Member. Kaewert teaches the EGSA class on electric starting systems, and authored the Electric Starting Systems chapter of the upcoming Fifth Edition of the EGSA On-Site Power Generation: A Reference Book.

A number of company staff are regulars at the Spring and Fall conferences for whom attending the EGSA events are important. The opportunity meet industry peers strengthens relationships and helps company staffers better understand and participate in power generation industry trends. SENS's EGSA members expressed that this feeling of community is not limited to the specific EGSA conferences or on-site power schools, but is apparent in the EGSA pavilion at the annual NFMT or Power-Gen tradeshow.

### A Distributed Generation Future

Kaewert takes his purpose and mission statement to heart. He relates an “aha” moment several years ago not long after sharing the company's reworked mission statement. He gained appreciation of the large number of potential events that could prevent SENS from succeeding in its goal of protecting critical equipment from shutdown due to power loss. SENS products rely on short-term batteries to provide uninterrupted power. Power outages lasting longer than battery run time would cause failure. So would longer term grid outages lasting longer than the fuel capacity of gensets. Even longer term outages could hamper the resupply of fuel and other supplies to keep gensets running.

After years of research including service with industry experts, Kaewert believes that the US power grid may be on borrowed time. He is not alone. A cross section of experts and the Federal Energy Regulatory Commission (FERC) agree that natural and man-made threats such as solar storms and cyberattacks could damage large portions of the grid for extended periods. Aggravating the problem is power grid capacity utilization near all-time highs, grid assets nearing or beyond their design life and increasing variability of load caused by variable output of alternative energy sources.

Kaewert believes that wide scale adoption of distributed generation – defined as any locally generated power including internal combustion engines, gas turbines, solar, wind, biofuel, fuel cell and prime movers not yet invented – would substantially reduce the impact of future large-scale outages on lives and property. There is growing evidence, some of it anecdotal from Superstorm Sandy, that once a power outage region grows large enough, life cannot be supported in regions furthest from and most difficult to reach by recovery assets. In such regions, islands of locally generated power are essential to survival and recovery.

### SENS LEAN PRODUCTION SYSTEM DELIVERS

“Lean” manufacturing improves customer satisfaction and improves supplier results by systematically eliminating wasted time, materials and money. Current SENS President Bill Kaewert believed from the time he joined the company that the customer satisfaction benefits offered by Lean Manufacturing technology were so compelling and hard enough to duplicate that the technology should become one of the company's competitive advantages. Simple in concept, implementing Lean takes total organizational commitment and intense work sustained over many years.

SENS now operates an effective Lean manufacturing system that delivers cost-competitive products on time and with industry-leading low rates of defect. SENS's manufacturing philosophy is to build each product to customer order. Once scheduled, products are assembled, tested, packed and shipped without interruption. Multiple assembly stations enable quality to be “built in” rather than inspected in at the end of the line as in traditional batch build systems. This cuts quality errors by two-thirds and overhead costs by 90%.

*Testimonial from long-time SENS representative Ron DeFries, President of Power Equipment Group best sums up the customer relations benefit of SENS management philosophy: “If we were forced to cut back to three the number of lines we represent SENS would absolutely be one of those three – even though they are one of our lower dollar lines. That's because SENS makes us look good. In contrast to other product lines we never have to expedite shipments, have no need to explain late shipments and don't need to deal with field failures.”*

The power grid is the most complicated machine ever invented. Each new technology attached introduces new failure modes. Green energy sources can harm, rather than improve grid stability because their output can be unpredictable. “Smart” grid controls increase vulnerability to cyberattacks. Any system architecture this complex is fundamentally flawed and within the next 100 years, the power grid as we know it might be obsolete. Locally generated islands of electricity could increase resiliency of power generation by reducing the impact of any one failure, and by cutting the geographic span of any one failure. Kaewert believes we would be wise to start considering this future now before we are faced with attempting to restart the grid after a really big disaster. That's a monumental task never before attempted.

A distributed energy future could involve large numbers of gensets, along with gas turbines, solar panels, fuel cells (that also deliver potable water), refrigerator-sized nuclear plants and any other viable power generating technology. As a leader in distributed energy thinking today, there is a tremendous opportunity for EGSA to expand. Kaewert believes that the organization may wish to embrace technologies in addition to RICE and develop partnerships with other industry organizations to maintain its leadership in what promises to be a very dynamic future. ■



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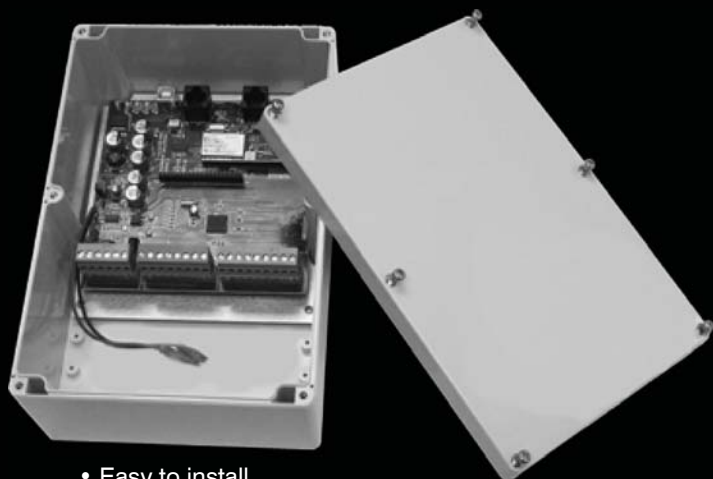
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## USA Mid-Atlantic

### Electric Power Generation Technician

**Carter Machinery Company, Inc.**

**Location:** Chesapeake, VA

We have immediate openings for experienced EPG Technicians. Candidates should possess:

- 3-5 years of EPG/electronics experience; technical degree a plus
- Ability to troubleshoot/repair all components of back-up generators, both mechanical/electrical
- Understanding of EPG distribution systems (up to 3 phase/480 volts) automatic transfer switches, UPS, switchgear operation
- Ability to read technical drawings/schematics
- Excellent customer service skills; ability to multi-task under limited supervision
- Good driving record; flexibility to work overtime as necessary
- High school diploma/GED

**To apply:** Submit resume to [www.cartermachinery.com/careers](http://www.cartermachinery.com/careers)

**Application Deadline:** 2013-02-28 00:00:00

### Outside Sales - Power Generation

**Cummins Atlantic LLC**

**Location:** Richmond, VA

Sales management of power generation projects, ensuring the product meets the customer's specifications.

- Sell Commercial Power Generation equipment
- Develop new prospects and maintain existing accounts
- Provide support and power system design assistance to consulting engineers, contractors and end-user customers
- Manage sales process from start to finish, ensuring projects are delivered on-time and at estimated cost

For full job description, please visit:

<http://www.cumminsatlantic.com/careers.htm>

**To apply:** Email resume to [regan.shadday@cummins.com](mailto:regan.shadday@cummins.com) or fax to (704) 504-4984

## USA Midwest

### Industrial Sales Manager

**Buckeye Power Sales**

**Location:** Columbus, OH

Buckeye Power Sales, a Kohler generator distributor since 1947, seeks a manager to lead an existing sales team to greater success and position the company to reach significant growth goals. Responsible for sales strategies, plan design and implementation, analyzing markets and competitors, hiring, managing and coaching of staff, customer education, new business development, maintaining relationships, monitoring budgets and P&L. This position would not involve any direct sales.

**To apply:** [www.buckeyepowersales.com](http://www.buckeyepowersales.com)

**Application Deadline:** 2013-01-31 00:00:00

### EGSA Job Bank Guidelines

EGSA will advertise (free of charge) EGSA Member company job openings in the Job Bank. Free use of the Job Bank is strictly limited to companies advertising for positions available within their own firms. Companies who are not members of EGSA and third-party employment service firms who service our industry may utilize the Job Bank for a \$300 fee. Blind box ads using the EGSA Job Bank address are available upon request; company logos may be included for an additional fee. EGSA reserves the right to refuse any advertisement it deems inappropriate to the publication. To post an EGSA Job Bank ad (limited to approximately 50 words) please visit [www.EGSA.org/Careers.aspx](http://www.EGSA.org/Careers.aspx).

### Generator Sales

**Market Leader**

**Location:** Minneapolis, MN

Our Company is a market leader in sales and service of industrial equipment for over 50 years. The role of Generator Sales is responsible for new business development through outside sales efforts, maintenance of existing accounts and continuous promotion of products and services offered by the Company. They are required to have 3-5 years of experience in industrial engines and generators, a strong customer relation background; along with a proven sales track record.

**To apply:** [employeecandidates@yahoo.com](mailto:employeecandidates@yahoo.com)

### Power Field Service Supervisor

**Patten Industries**

**Location:** Elmhurst, IL

POSITION SUMMARY: The role of the Field Service Supervisor is to ensure customer satisfaction with properly trained and safe working technicians as well as lead and supervise office administration staff.

Qualified applicants, please apply through this link: <https://home.eease.adp.com/recruit/?id=2738601>

**To apply:** <https://home.eease.adp.com/recruit/?id=2738601>

### Engineering and Product Support Sales Manager

**Patten Industries**

**Location:** Elmhurst, IL

Please apply through this link:

<https://home.eease.adp.com/recruit/?id=2785151>

**To apply:** <https://home.eease.adp.com/recruit/?id=2785151>

## USA National

### Application Service Engineer

**ComAp LLC**

**Location:** Roscoe, IL

ComAp LLC is actively seeking qualified Application Service Engineers to support sales and service through expert customer technical support utilizing presentations, training, design, installation, and commissioning. Candidates should possess:

- BS Degree in Mechanical or Electrical Engineering or 5 years of experience
- PLC or Microprocessor based controls, software, and logic
- Knowledge of reciprocating engines, generators, pumps, compressors, or other industrial equipment
- SolidWorks or AutoCAD
- Read and create wiring diagrams, schematics, and mechanical drawings

**To apply:** send resume to [HR@comapllc.com](mailto:HR@comapllc.com)

### Technical Support Engineer

**ComAp LLC**

**Location:** Roscoe, IL

ComAp LLC is actively seeking qualified Technical Support Engineers to support sales and service through expert customer technical support utilizing presentations, training, installation, and commissioning.

Candidates should possess:

- -AS Degree in Mechanical or Electrical Engineering or 2-5 years of experience
- -PLC or Microprocessor based controls, software, and logic
- - Knowledge of reciprocating engines, generators, pumps, compressors, or other industrial equipment
- - Read and create wiring diagrams, schematics, and mechanical drawings

**To apply:** Send resume to [HR@comapllc.com](mailto:HR@comapllc.com)

## USA Northeast

### Channel Manager

**Kinsley Power Systems**

**Location:** CT/NY

Kinsley Power Systems is looking for a Channel Manager to oversee the overall business relationship between Dealers & Kinsley. Key responsibilities will be to provide leadership, direction, and support to Dealers that will grow sales and a smooth customer buying and ownership experience of Kohler residential generators in the area codes of 203, 914, 845.

**To apply:** [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com)

### Field Service Technician

**Kinsley Power Systems**

**Location:** Northeast

Kinsley Power Systems is seeking experienced generator technicians throughout the Northeast (NY, VT, CT, MA, PA, NJ). This position is responsible for completing preventive maintenance, repairs and service on standby power generation equipment. Due to the nature of the service business Field Service Technicians must reside within 25 miles of the available territory.

**EGSA Certified Technicians Preferred**

**To apply:** [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com)

### Director of Industrial Sales

**Kinsley Power Systems**

**Location:** Hartford/CT

Kinsley Power Systems is looking for a Director of Industrial Sales. This position is a key contributor to the continued growth of Kinsley Power Systems. This high-visibility position requires the successful candidate to create & implement a sales plan to exceed budgeted revenue goals, and manage a staff of inside sales, engineering/project management, and outside sales to achieve more while further embracing the Company's core values.

**To apply:** [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com)

### Business Development Manager

**Kinsley Power Systems**

**Location:** NY/CT

Kinsley Power Systems is looking for a business development associate to further develop our Lower New York and Connecticut markets. This position will focus on the sale of 3 phase industrial applications starting from 40kW, including related equipment (transfer switches, switchgear, etc). Certified Techs:

**To apply:** [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com)



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### Aftermarket Sales Manager

**Kinsley Power Systems**

**Location:** Concord, NH

Kinsley is looking for an Aftermarket Sales Manager that will be responsible for developing, growing and managing the Company's emergency power generator service & maintenance sales business throughout the Vermont, New Hampshire, Southern Maine and Northern Massachusetts markets.

**To apply:** Interested candidates should forward their resume to [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com).

### Industrial Sales Engineer

**Kinsley Power Systems**

**Location:** Syracuse/Rochester, NY

Kinsley is looking for an experienced Industrial Sales Engineer in the Syracuse/Rochester, NY area that will sell industrial applications from 20kW to 2800kW, including related equipment (transfer switches, switchgear, etc). Experience working with engineers, electrical contractors, end-users and OEMs, required.

**To apply:** Interested candidates should forward their resume to [lbarnes@kinsley-group.com](mailto:lbarnes@kinsley-group.com).

## USA Northwest

### Product Design Engineer

**Hotstart, Inc.**

**Location:** Spokane, WA

HOTSTART Inc., a world leading manufacturer of industrial engine preheating systems, seeks a Product Design Engineer. Responsibilities include development of innovative new products, working with customers and sales staff on new opportunities and cooperating with production, procurement and quality groups on continuous improvement efforts. Candidates must have a BS/MS in Mechanical or Electrical Engineering and three or more years of product design experience. For a full job description, please visit [www.hotstart.com/employment](http://www.hotstart.com/employment)

**To apply:** Email resume to [careers@hotstart.com](mailto:careers@hotstart.com)

## USA Southeast

### Field Service Technician

**Energy Systems Southeast, LLC**

**Location:** Southeast

Generator/ Engine Service Technician  
Birmingham based Residential/Industrial Generator Dealer serving a 4 state area is currently searching for a Generator Technician for the Birmingham area, to work from their home with company furnished truck. Must have a minimum of 3 years service exp. Position will have some overnight travel throughout the State of Alabama at company expense. Pre-employment background and drug screening required.

**EGSA Certified Technicians Preferred**

**To apply:** Email resume and salary requirements to [birminghamwarehouse@gmail.com](mailto:birminghamwarehouse@gmail.com)

### Sales/Technical Support Representative

**FGW Latin America & Caribbean**

**Location:** Miramar, FL

FGW Latin America & Caribbean, located in Miramar, FL has an immediate opening for a Sales/Technical Support Representative handling direct-to-customer sales and product support (mainly by phone) to our customers throughout Latin America & the Caribbean. A minimum of 2 – 5 years experience in the Power Generation Industry is required. Previous field experience is preferred. Applicant must speak English & Spanish. Competitive salary, performance bonus, healthcare, and other benefits provided. All resume submissions treated confidentially.

**To apply:** email resume to [hry2008@fgwilsonmiami.com](mailto:hry2008@fgwilsonmiami.com)

### Switchgear/UPS Specialist

**Yancey Bros. Co.**

**Location:** Austell, GA

Yancey Bros. Co., Caterpillar equipment dealer for Georgia, is seeking an experienced Switchgear/UPS Specialist. Successful candidates should be well-versed in the electrical aspect of power generation regardless of the type of switchgear being worked on. Must have knowledge of Dual Source Paralleling, PLC's, Electronic Engine Governors, Remote Monitoring Systems, Industrial Controls, and other Power Distribution equipment. Minimum of 5 years direct experience switchgear, UPS and Automatic Transfer Switches. See full job description at <http://www.yanceybros.com/careers>.

**To apply:** Email resume to [careers@yanceybros.com](mailto:careers@yanceybros.com)

**Application Deadline:** 2013-01-31 00:00:00

## USA Southwest

### Service Technician

**Generators of Texas - Houston**

**Location:** Houston/Texas/USA

Hiring now field service technicians - journeyman and senior. This position is responsible for completing preventive maintenance, repairs and service on standby power generation equipment. Good pay and benefits. Clean Driving Record, Basic Tools and Professional Work Ethic Required. Experience Repairing and Troubleshooting Diesel/ Natural Gas Fired Generators from 20kW thru 2000kW, Automatic Transfer Switches and Paralleling Switch Gear needed. Drug Free Workplace. EOE.

**EGSA Certified Technicians Preferred**

**To apply:** Email resume to [service@generatorsfhoustan.com](mailto:service@generatorsfhoustan.com)

**Application Deadline:** 2013-03-01 00:00:00

### Inside Sales/Field Service Technician

**Hotstart, Inc.**

**Location:** Katy, TX

HOTSTART Inc., a world leading manufacturer of industrial engine preheating systems, seeks an Inside Sales/Field Service Technician. Responsibilities include inside sales/customer support, product evaluation and testing, product installation along with service and maintenance. Candidates should possess mechanical and electrical aptitude and technical experience with gas compression or marine applications. We are seeking a motivated, enthusiastic person with strong communication/ organization skills and a positive attitude. Multiple languages a plus. For full job description, visit [www.hotstart.com/employment](http://www.hotstart.com/employment)

**To apply:** Email resume to [careers@hotstart.com](mailto:careers@hotstart.com)



## Ring Power Rallies 'Round Recovery Efforts

The Power Systems Rental team of Ring Power Corporation continues to assist with



relief and recovery efforts in the aftermath of Hurricane Sandy.

To date Ring Power has deployed in excess of 73 megawatts of Cat® Rental Power to peer Cat dealers and customers across the Northeast and is working closely with the dealers, Caterpillar Defense and Project personnel and customers to provide temporary power solutions. Cat sound-attenuated generators have been dispatched to Maryland, New York, Pennsylvania, Connecticut and New Jersey for relief rental applications including: temporary shelters, hospitals, insurance claim offices, gas stations and supermarkets. The rental units, or "XQs," are also being used to power pumps in areas where flooding has occurred.

In addition to more than five miles of portable power cable, Ring Power has provided factory-trained service technicians, transportation and project management services.

Visit [www.ringpower.com](http://www.ringpower.com) more information. ■

## Kaiser Electric Hires Design Engineer Brian Litteken

Kaiser Electric recently hired Brian Litteken of St. Peters, MO as a Design Engineer.

Litteken is responsible for designing and reviewing engineered documents for design/build projects, designing detailed drawings for field installations and pre-fabrication, and assisting project managers with equipment layout, conduit routing, etc.



Prior to Kaiser, Litteken worked for Ascent, LLC for a year as a Project Engineer and as a Project Manager/Estimator for two years at Sachs Electric. He also previously worked for Kaiser Electric for three years as an Assistant Project Manager and a Manager of the Communications Department.

Litteken has a B.S. in Electrical Engineering and Computer Engineering from the University of Missouri, Columbia. He has also successfully completed the FE/EIT certification exam.

For more information about Kaiser Electric, visit [www.kaiserelectric.com](http://www.kaiserelectric.com). ■

## MIRATECH Announces Three New Hires

Nicholas Munno has been hired in the position of Application Engineer. Munno will be responsible for application and technical support of MIRATECH products to sales staff, corporate and independent representatives, customers, vendors and production personnel. In his position Munno will use engineering principles to size and specify products, generate sales and fabrication drawings and develop cost estimates for specialized products.



Munno will be based at MIRATECH headquarters in Tulsa, OK. He brings five years of increasingly responsible mechanical engineering experience to his MIRATECH position, including design work for automation projects as well as HVAC systems for Siemens Industry of Richmond, VA. Munno holds a BS in Mechanical Engineering from Virginia Commonwealth University.

Amber Neville has been hired in the position of Gas Compression Division Outbound Sales. Neville will develop and manage MIRATECH's United States gas compression station database. She will work with MIRATECH's sales team to generate, update and maintain the database and to qualify leads and integrate opportunities into the company's CRM program. Future responsibilities are expected to include outbound sales as well as integrating gas compression station locations into a CRM integrated mapping program.



Neville will be based at MIRATECH headquarters in Tulsa, OK.

Prior to joining MIRATECH Neville held a staffing coordinator position for a Tulsa based senior care company; marketing assistant for National Commercial Auctioneers, a

Tulsa auction company; property manager for ACORN US Management and a sales representative for Phoenix, Arizona's KB Homes.

Neville has a Bachelor of Science degree in Marketing from Northern Arizona University, Flagstaff, AZ.

MIRATECH has named Jessica M. Hotier (not pictured) its Marketing Director, a position that combines information and marketing analysis with pricing and market intelligence. This position manages all related external marketing communications, print, and web based vendors. Additional responsibilities include sales management, sales support and CRM supervision.

Hotier will be based at MIRATECH headquarters in Tulsa, OK.

Hotier brings a rich background in operations planning and strategy, project and marketing management as well as overseas experience to her position. Her background includes positions in military intelligence and international planning and strategy for the U.S. Air Force, the Department of Defense and NATO in locations including Honduras, Ecuador, Japan, Germany, Italy, and Washington D.C.

More recently, Hotier served as a NATO Strategic Planner for the U.S. European Command in Stuttgart, Germany and held management positions in global corporations Lafarge and Saint-Gobain. She directed multinational planning, sales support and business development projects throughout Western and Eastern Europe.

Hotier is a former U.S. Air Force officer and holds a bachelor's degree from Smith College, a Master's Degree in International Trade from George Mason University and an M.B.A. from the University of Chicago.

Visit [www.miratechcorp.com](http://www.miratechcorp.com) more information. ■



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- Fire Pump Controllers
- Surge Suppressors
- Load Banks
- Services



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